ALFRA®

Quality Tools and Machines

PUNCHING
BENDING
CUTTING

revised Edition

21

Part A

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NEWS
HERZLICH WILLKOMMEN BEI ALFRA - ALFRED RAITH GMBH, DEUTSCHLAND!
Über 60% Eigenfertigungsanteil an 4 Standorten in Deutschland - darauf sind wir zurecht stolz. Vom Heimatstandort in der Rennstadt Hockenheim aus gehen unsere Produkte weltweit regelmäßig in mehr als 80 Länder. Unser Händlernetz sorgt dafür, dass nahezu jeder - wirklich jeder - unsere hochwertigen Produkte einsetzen und deren vielfältige Anwendungsvorteile nutzen kann.
Was machen wir bei ALFRA? - Etwas vereinfacht ausgedrückt: Wir machen Löcher!
Das bedeutet, wir fertigen und vertreiben Elektrogeräte und Werkzeuge zum Stanzen und Bohren von 0,8 bis mehr als 100 mm Materialstärke, hauptsächlich für Anwendungen im Bereich Metallbau. Darüber hinaus beinhaltet unsere Produktpalette zahlreiche Ergänzungsartikel z.B. im Bereich der Säge- und Entgrattechnik, etc.
Testen sie uns - wir freuen uns auf sie als einen von zahlreichen, zufriedenen Kunden.
Made in Germany - Made by ALFRA
Mit weniger sollten sie sich nicht zufrieden geben!

Made in Germany

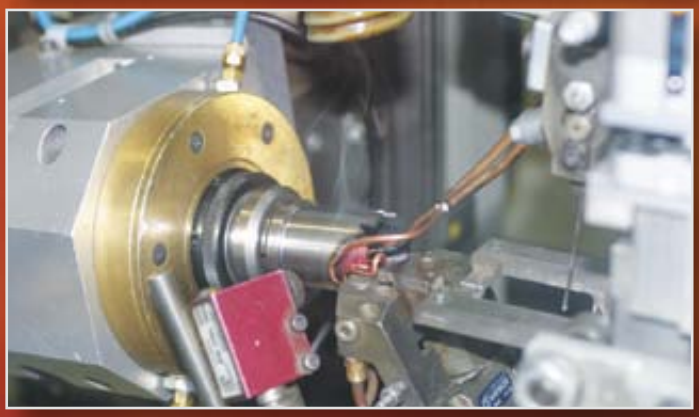
Our product range

A

Punching – Bending – Cutting

B

Drilling – punching – cutting – deburring



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Qualitätswerkzeuge
und Maschinen
STANZEN
BOHREN
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A

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for control cabinet and switchgear engineering + cutting

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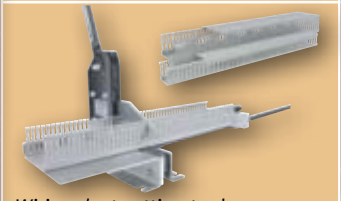

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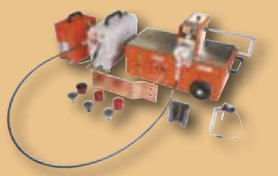

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Splitter punch - Tristar – Metric M 12 - M 63 + PG 9 - PG 48

3-fold splitter punch and die • Made in Germany by ALFRA

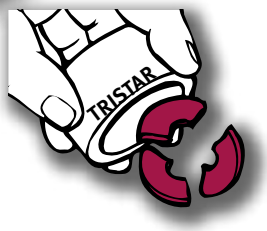
Sheet metal punching system with splitter punch for mild steel (F = 370 N/mm²).

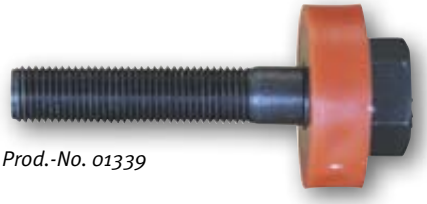
Operation:
By means of spanner or by means of a hydraulic device.

Suitable for sheet metal thickness mild steel (F = 370 N/mm²):

1.5 mm with	screws Ø	6.0 mm
2.0 mm with	screws Ø	9.5 mm
3.0 mm with	screws Ø	19.0 mm
Pre-drilling:	screws Ø	6.0 mm: Ø 6.2 - 6.5 mm
	screws Ø	9.5 mm: Ø 9.7 - 10.0 mm
	screws Ø	19.0 mm: Ø 19.5 - 20.0 mm

- Apply grease to tension screws! Metal lubricating paste protects from wear and seizure.
- For hand operation, tension screws with ball-bearings (BB) have to be used.
- Accessory (tension screws, pre-drill, ...).





Prod.-No. 01339

Prod.-No. 02003

Prod.-No. 02002

Ø in mm	Size Metric	Size PG	Prod.-No. (Punch and die)	Suitable tension screw with ball bearing Ø x l in mm	Prod.-No.	Suitable hydr. screw Ø in mm	Prod.-No.
12,5	M 12	-	01770	6,0 x 40,0	01334	19,0 x 6,0 ■	02022
15,2	-	9	01771	9,5 x 50,0	01339	19,0 x 9,5	02003
16,2	M 16	-	01772	9,5 x 50,0	01339	19,0 x 9,5	02003
18,6	-	11	01773	9,5 x 50,0	01339	19,0 x 9,5	02003
20,4	M 20	13	01774	9,5 x 50,0	01339	19,0 x 9,5	02003
22,5	-	16	01775	9,5 x 50,0	01339	19,0 x 9,5	02003
25,4	M 25	-	01776	9,5 x 50,0	01339	19,0 x 9,5	02003
28,3	-	21	01777	9,5 x 50,0	01339	19,0 x 9,5	02003
28,3	-	21	01778	19,0 x 55,0	01340	19,0	02002
30,5	-	-	01779	9,5 x 50,0	01339	19,0 x 9,5	02003
32,5	M 32	-	01780	19,0 x 55,0	01340	19,0	02002
37,0	-	29	01781	19,0 x 55,0	01340	19,0	02002
40,5	M 40	-	01782	19,0 x 75,0	01341	19,0	02002
47,0	-	36	01783	19,0 x 75,0	01341	19,0	02002
50,5	M 50	-	01784	19,0 x 75,0	01341	19,0	02002
54,0	-	42	01785	19,0 x 75,0	01341	19,0	02002
60,0	-	48	01786	19,0 x 75,0	01341	19,0	02002
63,5	M 63	-	01787	19,0 x 75,0	01341	19,0	02002

■ Only for Compact punch

TIP: Use hydraulic screws from high-alloy tool steel for heavy-duty purpose (made of one piece) – 19.0 x 9.5 mm Prod.-No. 02010

Inch sizes are available on request

Splitter punch - Tristar – Sets

3-fold splitter punch and die • Made in Germany by ALFRA

- All sets are delivered in robust and practical plastic boxes.
- We gratefully accept your special equipment requirement.

Metric Tristar Set

for mild steel (F = 370 N/mm²)

Prod.-No. 01754

Content: 6 Dimensions,
each of 1 punch and die
M 12/16/20/25/32/40
1 BB-screw Ø 6.0 x 40.0 mm
1 BB-screw Ø 9.5 x 50.0 mm
1 BB-screw Ø 19.0 x 55.0 mm
1 Pre-drill HSS Ø 10.0 mm
1 Tin of lubricating paste

Prod.-No. 01754

Metric Tristar Set

for mild steel (F = 370 N/mm²)

Prod.-No. 01755

Content: 7 Dimensions,
each of 1 punch and die
M 16/20/25/32/40/50/63
2 BB-screw Ø 9.5 x 50.0 mm
1 BB-screw Ø 19.0 x 55.0 mm and 19.0 x 75.0 mm
1 Pre-drill HSS Ø 10.0 mm
1 Tin of lubricating paste

Prod.-No. 01755

Tristar Set PG

for mild steel (F = 370 N/mm²)

Prod.-No. 01750

Content: 6 Dimensions,
each of 1 punch and die
PG 9/11/13/16/21 and Ø 30.5
2 BB-screw Ø 9.5 x 50.0 mm
1 Pre-drill HSS Ø 10.0 mm
1 Tube lubricating paste

Prod.-No. 01750

Tristar Set PG

for mild steel (F = 370 N/mm²)

Prod.-No. 01751

Content: 10 Dimensions,
each of 1 punch and die
PG 9/11/13/16/21/29/36/42/48 and Ø 30.5
2 BB-screw Ø 9.5 x 50.0 mm
each 1 BB-screw Ø 19.0 x 55.0 mm and 19.0 x 75.0 mm
1 Pre-drill HSS Ø 10.0 mm
1 Tin of lubricating paste

Prod.-No. 01751

Splitter punch - Tristar Plus – Metric M 16 - M 63 + PG 9 - PG 48

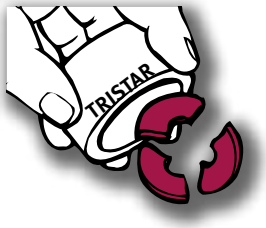
3-fold splitter punch and die • Made in Germany by ALFRA

Punch system with splitter punch **for stainless steel** and mild steel (F = 370 N/mm²).

Operation:
By means of a hydraulic device like Compact puncher, hand, foot or an electrohydraulic pump. Hand operation is partly possible.

Suitable for sheet metal thickness (stainless steel):
2.0 mm with screws Ø 11.1 mm
2.5 mm with screws Ø 19 mm.
Pre-drilling: Screws Ø 11.1 mm: Ø 11.3 - 11.5 mm
Screws Ø 19.0 mm: Ø 19.5 - 20.0 mm

- Apply grease to tension screws! Metal lubricating paste protects from wear and seizure.
- For hand operation, tension screws with ball-bearings (BB) have to be used › see below.
- Accessory (tension screws, pre-drill, ...).



Prod.-No. 01342

Prod.-No. 02007

Prod.-No. 02002

Ø in mm	Size Metric	Size PG	Prod.-No. (Punch and die)	Suitable tension screw with ball bearing Ø x l in mm	Prod.-No.	Suitable hydr. screw Ø in mm	Prod.-No.
15,2	-	9	01600	11,1 x 60,0	01342	19,0 x 11,1	02007
16,2	M 16	-	01656	11,1 x 60,0	01342	19,0 x 11,1	02007
18,6	-	11	01603	11,1 x 60,0	01342	19,0 x 11,1	02007
20,4	M 20	13	01606	11,1 x 60,0	01342	19,0 x 11,1	02007
22,5	-	16	01609	11,1 x 60,0	01342	19,0 x 11,1	02007
25,4	M 25	-	01659	11,1 x 60,0	01342	19,0 x 11,1	02007
28,3	-	21	01612	19,0 x 55,0	01340	19,0	02002
30,5	-	-	01615	19,0 x 55,0	01340	19,0	02002
32,5	M 32	-	01662	19,0 x 55,0	01340	19,0	02002
37,0	-	29	01621	19,0 x 55,0	01340	19,0	02002
40,5	M 40	-	01665	19,0 x 75,0	01341	19,0	02002
47,0	-	36	01627	19,0 x 75,0	01341	19,0	02002
50,5	M 50	-	01668	19,0 x 75,0	01341	19,0	02002
54,0	-	42	01633	19,0 x 75,0	01341	19,0	02002
60,0	-	48	01636	19,0 x 75,0	01341	19,0	02002
63,5	M 63	-	01671	19,0 x 75,0	01341	19,0	02002

TIP: Use hydraulic screws from high-alloy tool steel for heavy-duty purpose (made of one piece) – 19.0 x 11.1 mm Prod.-No. 02011

Inch sizes are available on request

Splitter punch - Tristar Plus – Sets

3-fold splitter punch and die • Made in Germany by ALFRA

- All sets are delivered in robust and practical plastic boxes.
- We gratefully accept your special equipment requirement.

Metric Tristar Plus Set

for mild steel (F = 370 N/mm²) **and stainless steel**

Prod.-No. 01654

Complete in transport boxes
Content: 1 Hydr. punch type Compact aluminium
7 Dimensions -
each 1 x punch and die M 16/20/25/32/40/50/63
each 1 hydr. screw Ø 19.0 x 11.1 and Ø 19.0 mm
1 Pre-drill HSS Ø 11.5 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01654

Tristar Plus Set PG

for mild steel (F = 370 N/mm²) **and stainless steel**

Prod.-No. 01650

Complete in transport boxes
Content: 1 Hydr. punch type Compact aluminium
8 Dimensions -
each 1 x punch and die PG 9/11/13/16/21/29/36/42
each 1 hydr. screw Ø 19.0 x 11.1 and Ø 19.0 mm
1 Pre-drill HSS Ø 11.5 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01650

Metric Tristar Plus Set

for mild steel (F = 370 N/mm²) **and stainless steel**

Prod.-No. 01655

Complete in transport boxes
Content: 1 Hydr. punch type Compact Combi aluminium
7 Dimensions -
each 1 x punch and die M 16/20/25/32/40/50/63
each 1 hydr. screw Ø 19.0 x 11.1 and Ø 19.0 mm
1 Pre-drill HSS Ø 11.5 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01655

Tristar Plus Set PG

for mild steel (F = 370 N/mm²) **and stainless steel**

Prod.-No. 01651

Complete in transport boxes
Content: 1 Hydr. punch type Compact Combi aluminium
8 Dimensions -
each 1 x punch and die PG 9/11/13/16/21/29/36/42
each 1 hydr. screw Ø 19.0 x 11.1 and Ø 19.0 mm
1 Pre-drill HSS Ø 11.5 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01651

Splitter punch - Tristar Plus S – Metric M 16 - M 63 + PG 7 - PG 48

2-fold splitter punch and die • Made in Germany by ALFRA

Punch system with splitter punch **for stainless steel and mild steel (F = 370 N/mm²).**

Operation:
By means of spanner or by means of a hydraulic device like Compact puncher, hand, foot or electrohydraulic pump.

Suitable for mild steel (F = 370 N/mm²) sheets of thickness:
2.0 mm with Screws Ø 9.5 mm
2.5 mm with Screws Ø 11.1 mm
3.0 mm with Screws Ø 19.0 mm

Suitable for stainless steel sheets of thickness:
2.0 mm with Screws Ø 9.5 mm
2.5 mm with Screws Ø 11.1 mm
3.0 mm with Screws Ø 19.0 mm

stainless steel

low pressure build up by 2-fold splitter punch

Ø in mm	Size Metric	Size PG	Prod.-No. (Punch and die) Ø x l in mm	Suitable tension screw with ball bearing	Prod.-No.	Suitable hydr. screw Ø in mm	Prod.-No.
12,7	M 12	7	01510	9,5 x 50	01339	19,0 x 9,5	02003
15,2		9	01513	9,5 x 50	01339	19,0 x 9,5	02003
16,2	M 16		01516	9,5 x 50	01339	19,0 x 9,5	02003
18,6		11	01519	9,5 x 50	01339	19,0 x 9,5	02003
20,4	M 20	13	01522	11,1 x 60	01342	19,0 x 11,1	02007
22,5		16	01525	11,1 x 60	01342	19,0 x 11,1	02007
25,4	M 25		01528	11,1 x 60	01342	19,0 x 11,1	02007
28,3		21	01531	19,0 x 55	01340	19,0	02002
30,5			01534	19,0 x 55	01340	19,0	02002
32,5	M 32		01537	19,0 x 55	01340	19,0	02002
37,0		29	01540	19,0 x 55	01340	19,0	02002
40,5	M 40		01543	19,0 x 75	01341	19,0	02002
47,0		36	01546	19,0 x 75	01341	19,0	02002
50,5	M 50		01549	19,0 x 75	01341	19,0	02002
54,0		42	01552	19,0 x 75	01341	19,0	02002
60,0		48	01555	19,0 x 75	01341	19,0	02002
63,5	M 63		01558	19,0 x 75	01341	19,0	02002

Compact Hand Hydraulic Set Tristar Plus -S- Set – Metric

	Prod.-No.
for mild steels (F = 370 N/mm²) **and stainless steel**	01570

Complete in transport case
Content: 1 Hydraulic punch type Compact aluminium
5 Tristar Plus -S- Punches and Dies M 16 - M 40
Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 mm
1 Hydraulic Screw Ø 19 mm
1 Hydraulic Screw Ø 19 x 9,5 mm
1 Hydraulic Screw Ø 19 x 11,1 mm
1 HSS Pre-drill Ø 11,5 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01570

Compact Combi Hand Hydraulic Set Tristar Plus -S- Set – Metric

	Prod.-No.
for mild steels (F = 370 N/mm²) **and stainless steel**	01575

Complete in transport case
Content: 1 Hydraulic punch type Compact Combi aluminium
5 Tristar Plus -S- Punches and Dies M 16 - M 40
Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 mm
1 Hydraulic Screw Ø 19 mm
1 Hydraulic Screw Ø 19 x 9,5 mm
1 Hydraulic Screw Ø 19 x 11,1 mm
1 HSS Pre-drill Ø 11,5 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01575

Inch sizes are available on request

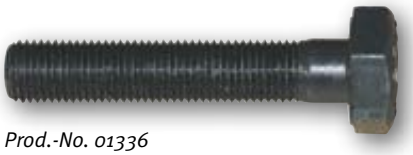
Standard punch – Metric M 12 - M 75 + PG 7 - PG 48

with 3 cutting tips – punch, die and tension screw • Made in Germany by ALFRA

Punching steel sheets mild steel (F = 370 N/mm²) and plastics – quickly, easily, cleanly and without burrs!

- Suitable for sheet metal mild steel (F = 370 N/mm²) thickness:
  2.0 mm with screws Ø 9.5 mm or
  3.0 mm with screws Ø 19.0 mm.
- Exceeding these values can lead to damages on the tension screws. When operating with the spanner, make sure you grease the tension screws. (lubricating paste Prod.-No. 33005)
- Pre-drilling: Screws Ø 9.5 mm: Ø 11.0 mm
  Screws Ø 19.0 mm: Ø 20.5 mm
- Using tension screws with ball bearings › saves energy during hand operation, by reducing the friction between the punch and die.

Puncher cutting diagram



Prod.-No. 01336

Prod.-No. 01340

Ø in mm	Size Metric	Size PG	Prod.-No. (punch, die +tension screw	Suitable tension screw Ø x l in mm	Prod.-No.	Suitable tension screw with ball bearing Ø x l in mm	Prod.-No.
12,7	M 12	7	01001	9,5 x 40	01335	9,5 x 50	01339
15,2		9	01005	9,5 x 40	01335	9,5 x 50	01339
16,2	M 16		01009	9,5 x 40	01335	9,5 x 50	01339
18,6		11	01021	9,5 x 40	01335	9,5 x 50	01339
19,0			01025	9,5 x 40	01335	9,5 x 50	01339
20,0			01029	9,5 x 40	01335	9,5 x 50	01339
20,4	M 20	13	01033	9,5 x 40	01335	9,5 x 50	01339
22,0			01041	9,5 x 40	01335	9,5 x 50	01339
22,5		16	01045	9,5 x 40	01335	9,5 x 50	01339
25,0			01053	9,5 x 50	01336	9,5 x 50	01339
25,4	M 25		01057	9,5 x 50	01336	9,5 x 50	01339
28,3		21	01069	9,5 x 50	01336	9,5 x 50	01339
28,3		21	01073	19,0 x 55	01337	19,0 x 55	01340
30,1			01085	9,5 x 50	01336	9,5 x 50	01339
30,5			01093	9,5 x 50	01336	9,5 x 50	01339
31,7			01101	9,5 x 50	01336	9,5 x 50	01339
32,5	M 32		01105	9,5 x 50	01336	9,5 x 50	01339
35,0			01121	9,5 x 50	01336	9,5 x 50	01339
35,0			01125	19,0 x 55	01337	19,0 x 55	01340
37,0		29	01129	19,0 x 55	01337	19,0 x 55	01340
38,0			01133	19,0 x 55	01337	19,0 x 55	01340
40,5	M 40		01149	19,0 x 55	01337	19,0 x 55	01340
42,8			01157	19,0 x 55	01337	19,0 x 55	01340
47,0		36	01165	19,0 x 75	01338	19,0 x 75	01341
50,5	M 50		01177	19,0 x 75	01338	19,0 x 75	01341
54,0		42	01189	19,0 x 75	01338	19,0 x 75	01341
60,0		48	01201	19,0 x 75	01338	19,0 x 75	01341
63,5	M 63		01209	19,0 x 75	01338	19,0 x 75	01341

For 68.0 mm onwards the operation with a screw spanner is still possible, but we recommend the application of hydraulic devices.

68,0			01241	19,0 x 75	01338	19,0 x 75	01341
70,0			01221	19,0 x 75	01338	19,0 x 75	01341
76,2			01229	19,0 x 75	01338	19,0 x 75	01341
75,5	M 75		01225	19,0 x 75	01338	19,0 x 75	01341
80,0			01237	19,0 x 75	01338	19,0 x 75	01341
82,0			01245	19,0 x 75	01338	19,0 x 75	01341

	Punch	Die
89,0	01251	01252
92,0	01253	01254
100,5	01257	01258
115,5	01265	01266
120,0	01267	01268

From 89.0 mm the application of hand, foot or electrohydraulic pumps is necessary.
Necessary accessories:
Hydraulic tension screw 28.3 x 155 mm Prod.-No. 01398 and lock nut No. 7. Prod.-No. 01419

Inch sizes are available on request

Standard punch – Metric + PG Sets

with 3 cutting tips • Made in Germany by ALFRA

- All sets are delivered in robust and practical plastic boxes.
- We gratefully accept your special equipment requirement.

Metric punch set

Prod.-No. 01290

Content: 5 **metric** dimensions
each 1 x punch and die
M 16/20/25/32/40

Prod.-No. 01290 – 5-metric dimensions

Metric punch set

Prod.-No. 01291

Content: 7 **metric** dimensions
each 1 x punch and die
M 16/20/25/32/40/50/63

Prod.-No. 01291 – 7-metric dimensions

Punch set PG

Prod.-No. 01451

Content: 5 **PG** dimensions
each 1 x punch and die PG 9/11/13/16/21
2 ball bearing screws Ø 9.5 x 50.0 mm
1 Pre-drill HSS Ø 11.0 mm
1 Tube lubricating paste

Prod.-No. 01451 – 5 PG-dimensions

Punch set PG

Prod.-No. 01298

Content: 11 **PG** dimensions
each 1 x punch and die PG 7/9/11/13/16/21/29/36/42/48
and Ø 30.5 mm

Prod.-No. 01298 – 11 PG-dimensions

Inch sizes are available on request

ALFRA puncher – Sanitary

with 3 cutting tips • Made in Germany by ALFRA

- For punching holes in the dish-washing sink

Size mm	Designation	Screw size mm	Prod.-No.
Ø 28.3	Puncher, complete	M 10 x 1	01293
Ø 31.7	Puncher, complete	M 10 x 1	01294
Ø 35.0	Puncher, complete	M 10 x 1	01295
	Spare tension screw	M 10 x 1	01299

Sanitary puncher set

Prod.-No. 01450

With 3 dimensions compl. in storage box
Content: 3 Punching sets 28.3 + 31.7 + 35.0 mm
3 Tension screws M 10.0 x 1 mm
1 HSS-Co pre-drill Ø 11.0 mm
1 Metal lubricating paste

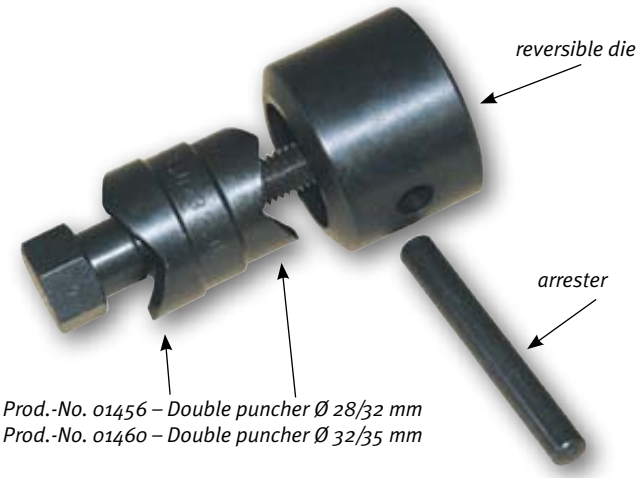
Prod.-No. 01450

ALFRA double puncher – Sanitary

with 3 cutting tips

- For punching holes in the dish-washing sink
- Operating spanner SW 19

Size mm	Designation	Screw size mm	Prod.-No.
28 and 32	Puncher, compl.	10 x 55 special	01456
32 and 35	Puncher, compl.	10 x 55 special	01460
	Spare tension screw	10 x 55 special	01457



Prod.-No. 01456 – Double puncher Ø 28/32 mm
Prod.-No. 01460 – Double puncher Ø 32/35 mm

Puncher – square

Made in Germany by ALFRA

- All punchers have a lateral ejection for the waste piece. No getting stuck inside the die.
- For mild steel (F = 370 N/mm²)
- Punchers are delivered in stable plastic boxes.
- When placing an order for hydraulic operation please specify the hydraulic model.

4 Markings for exact positioning in the cross-hairs.

Lateral ejection

Size mm	Max. material thickness mm / Mild Steel (F = 370 N/mm²)	For operation by		Prod.-No. Puncher complete	Spare parts: Prod.-No. Tie bolt	Spare parts: Prod.-No. Locking nut	Spare parts: Prod.-No. BB pressure nut	Spare parts: Prod.-No. Adapter for hydraulics	Pre-drilling Ø mm
12,7 x 12,7	1,75	■	■	01300	01348	01355	01352	01353	10
15,8 x 15,8	1,75	■	■	01301	01348	01355	01352	01353	10
19,0 x 19,0	2,0	■	■	01302	01347	01351	01352	01353	14
22,2 x 22,2	2,0	■	■	01303	01347	01351	01352	01353	14
24,0 x 24,0	2,0	■	■	01331	01347	01351	01352	01353	14
25,4 x 25,4	2,0	■	■	01304	01360	01354	01359	01361	17
45,5 x 45,5	3,0		■	01313	01345	01350			20
46,0 x 46,0	3,0		■	01305	01345	01350			20
50,8 x 50,8	3,0		■	01306	01344	01350			24
68,0 x 68,0	3,0		■	01308	01344	01349			24
92,0 x 92,0	3,0		■	01309	01343	01349			30
125,0 x 125,0	3,0		■	01431	01343	01356			30
138,0 x 138,0	3,0		■	01311	01343	01356			30

Puncher for stainless steel – square

Special version for stainless steel (and mild steel F = 370 N/mm²). For the use with hydraulic units only

stainless steel

Size mm	Max. material thickness mm	For operation by		Prod.-No. Puncher complete	Spare parts: Prod.-No. Tie bolt	Spare parts: Prod.-No. Locking nut	Pre-drilling Ø mm
46,0 x 46,0	2,0		■	01312	01345	01350	20
68,0 x 68,0	2,0		■	01315	01344	01349	24
92,0 x 92,0	2,0		■	01316	01343	01349	30

■ Other sizes available upon request.

Inch sizes are available on request

Puncher – rectangular

Made in Germany by ALFRA

- All punchers have a lateral ejection for the waste piece. No getting stuck inside the die.
- For mild steel (F = 370 N/mm²).
- Punchers are delivered in stable plastic boxes.
- When placing an order for hydraulic operation please specify the hydraulic model.

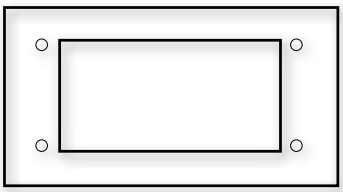
Prod.-No. 01329

Size mm	Max. material thickness mm / Mild Steel (F = 370 N/mm²)	For operation by		Spare parts Prod.-No. Puncher complete	Prod.-No. Tie bolt	Prod.-No. Locking nut or bridge	Prod.-No. BB pressure nut	Prod.-No. Adapter for hydraulics	Pre-drilling Ø mm
17,0 x 19,0	2,0	■	■	01317	01347	01351	01352	01353	14
21,8 x 25,8	2,0	■	■	01318	01360	01351	01359	01361	17
22,0 x 30,0	2,0	■	■	01319	01360	01351	01359	01361	17
22,0 x 42,0	2,0	■	■	01320	01360	01351	01359	01361	17
25,0 x 50,0	2,0	■	■	01332	01360	01418	01359	01361	17
45,0 x 92,0	2,0	■		01314	01344	01349			24
46,0 x 92,0	2,0	■		01329	01344	01349			24
68,0 x 138,0	3,0	■		01330	01343	01358			30

Puncher – rectangular for heavy connectors

Made in Germany by ALFRA

- For mild steel (F = 370 N/mm²).



4 centering mandrels are placed in the correct position at the die. When die and punch are pressed against each other, the drilling position gets marked on the interjacent work sheet.

These 4 marks can be used as a drilling template.

With help of the twist drill, the drilling assembly for connectors can be done easily.

Size mm	Max. material thickness mm/Mild Steel (F = 370 N/mm²)	For operation by	Number of pins	Spare parts Prod.-No. Puncher complete	Prod.-No. Tie bolt	Prod.-No. Locking nut	Pre-drilling Ø mm
36,0 x 52,0	2,0	■	6-pin	01325	01344	01350	24
36,0 x 65,0	2,0	■	10-pin	01326	01344	01350	24
36,0 x 86,0	2,0	■	16-pin	01327	01344	01350	24
36,0 x 91,0	2,0	■		01323	01344	01349	24
36,0 x 112,0	2,0	■	24-pin	01328	01344	01357	24
46,0 x 86,0	2,0	■		01322	01344	01349	24
46,0 x 112,0	2,0	■		01324	01343	01349	30

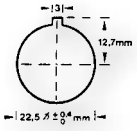
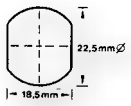
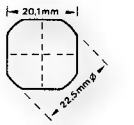
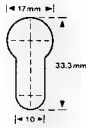
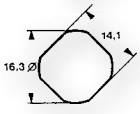
- Other sizes available upon request.

ALFRA Puncher – Special shapes

Made in Germany by ALFRA

- All punchers have a lateral ejection for the waste piece. No getting stuck inside the die.
- Punchers are delivered in stable plastic boxes.
- When placing an order for hydraulic operation please specify the hydraulic model.

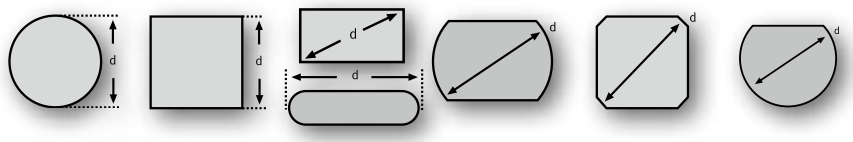
Prod.-No. 01423

	Size mm	Max. Material thickness mm/Mild Steel (F = 370 N/mm²)	For operation by		Prod.-No. Puncher complete	Spare parts: Prod.-No. Tie bolt	Prod.-No. Locking nut	Prod.-No. BB pressure nut	Prod.-No. Adapter for hydraulics	Pre-drilling Ø mm
	Ø 22,5 with 3 mm nose	2,0	■	■	01420	01333	01351	01352	01353	14
	anti-twist-protection									
	Ø 22,5 2-side flattened to 18.5 mm	2,0	■	■	01421	01347	01351	01352	01353	14
	Ø 22,5 4-side flattened to 20.1 mm	2,0	■	■	01422	01347	01351	01352	01353	14
	33,3 x 17,0 x 10,0 for profile cylinder	2,0	■	■	01423	01347	01351	01352	01353	14
	Ø 16,3 *4-side flattened to 14.1 mm*	1,75	■	■	01427	01348	01355	01352	01353	11

Puncher – special fabrications

Single fabrications are possible!!! • Made in Germany by ALFRA

- We can fabricate all round, square, rectangular punchers according to drawing at short notice.
- Please specify upon inquiry, whether for hand or hydraulic operation and the thickness and matrial number.
- Tools – punches – dies suitable for novopress e.g. HSTL 880/HTL 400 – are available for SUPPLY!!!
- Ask for our technical advice.



Inch sizes are available on request

ALFRA PUNCHER – SUB-MIN-D

Made in Germany by ALFRA

- For multiple connector “Sub-Min-D”

- For punching the cut-outs for 9 - 50 pin connectors. Anti-twist-protected axes are used as tie bolts for punch and die.
- All punchers have a lateral ejection for the waste piece. No getting stuck inside the die.
- Punchers are delivered in stable plastic boxes.

Prod.-No. 01369

Size mm	Max. material thickness mm/VA/Mild Steel (F = 370 N/mm²)	For operation by		Prod.-No. Puncher complete	Spare parts: Prod.-No. Tie bolt	Prod.-No. Locking nut	Prod.-No. BB pressure nut	Prod.-No. Adapter for hydraulics	Pre-drilling Ø mm
9 pin 19,8 x 11,3	2,0/1,5	■	■	01366	01438	01442	01352	01353	10
15 pin 28,2 x 11,3	2,0/1,5	■	■	01367	01438	01443	01352	01353	10
25 pin 41,9 x 11,3	1,75/1,25	■	■	01368	01438	01447	01352	01353	10
37 pin 58,4 x 11,3	1,75/1,25	■	■	01369	01438	01444	01352	01353	10
50 pin 55,7 x 13,9	1,65/1,0	■	■	01370	01438	01445	01352	01353	10

Inch sizes are available on request

ALFRA – Special nibbling tool ASN

Made in Germany by ALFRA

Application:

- Pre-punched round holes can be expanded easily and in a cost-saving manner to make square and rectangular holes.
- What is especially recommended for manufacturing rare sizes, square and rectangular shapes (special shapes), for manufacturing special tools appear uneconomical.

Operation:

- Use a puncher and Compact hand punch to pre-punch a pilot hole Ø 21.5 mm or Ø 28.5 mm.

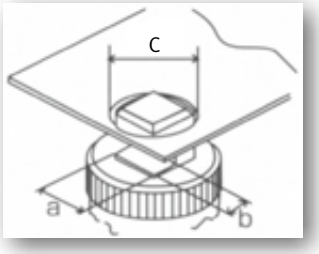
  Apply a nibbling tool with Compact punch and a round hole can be expanded to a square or rectangle of arbitrary size by multiple punching (nibbling) to the desired final dimension.
  The final dimension should be pre-marked to avoid skew punches.

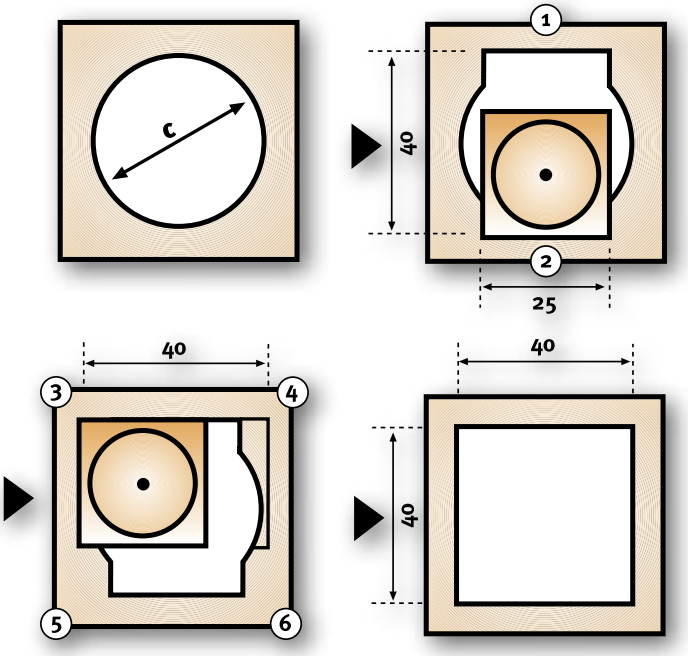
Material thickness:
max. 2,0 mm mild steel (F = 370 N/mm²)

Dimensions:	**a**	**b**	**c**
ASN 15	15,0	6,5	21,5
ASN 20	20,0	9,0	28,5

	Prod.-No.
ASN 15	03016
ASN 20	03017
Spare punch ASN 15	03018
Spare punch ASN 20	03019

Prod.-No. 03016





Inch sizes are available on request

ALFRA - PUNCHER

TIME-SAVING QUALITY TOOLS

1. HYDRAULIC HAND PUNCHER MADE OUT OF HIGH-TENSILE ALUMINIUM (APPROX. 40% WEIGHT SAVING)
2. ANGULAR HEAD, 360° ROTATABLE
3. PRESSURE-RELIEF VALVE – PROTECTS AGAINST OVERLOAD
4. ERGONOMIC HANDLE – SPRINGS BACK AUTOMATICALLY

5. 3-FOLD SPLITTER – NO JAMMING OF DROP-OFF PIECES
6. PUNCHES AND DIES OF EVERY PG AND METRIC SIZE

Compact hand hydraulic – Sets

In aluminium version – weight only 1.6 kg • Made in Germany by ALFRA

Practical hand punch without hose and cylinder.
Ideal for workshop and assembly.

Punching capacity		**Steel sheets**
Round holes up to	Ø 85 mm	2.0 mm F = 370 N/mm²
	Ø 64 mm	3.0 mm F = 370 N/mm²
Square holes	68 x 68 mm	2.0 mm F = 370 N/mm²
Rectangular holes	36 x 112 mm	2.0 mm F = 370 N/mm²
		Stainless steel sheets
Round holes up to	Ø 64 mm	2.5 mm F = 600 N/mm²

Weight:	1.6 kg
Punching force:	75 kN
Operating pressure max:	650 bar

Aluminium version
Weight only 1.6 kg

Excess pressure valve
Extended tool life owing to a built-in pressure control valve.
"Automatic pressure switch off at 650 bar"

Prod.-No. 02001/02005

Compact hand hydraulic

Prod.-No. 02001

Complete in transport case
Content: 1 Aluminium compact hand hydraulic punch
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 9.5 mm
1 HSS pre-drill Ø 11 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 02006

Compact hand hydraulic punch set PG

for mild steel (F = 370 N/mm²)

Prod.-No. 02006

Complete in transport case
Content: 1 Aluminium compact hand hydraulic punch
8 Standard punches and dies
PG 9 - 11 - 13 - 16 - 21 - 29 - 36 - 42
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 9.5 mm
1 HSS pre-drill Ø 11 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01752

Compact hand hydraulic punching set Tristar PG

for mild steel (F = 370 N/mm²)

Prod.-No. 01752

Complete in transport case
Content: 1 Aluminium compact hand hydraulic punch
9 Tristar punches and dies
PG 9 - 11 - 13 - 16 - 21 - 29 - 36 - 42 - 48
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 9.5 mm
1 HSS pre-drill Ø 10 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01765

Compact hand hydraulic punching set Tristar Set – Metric

for mild steel (F = 370 N/mm²)

Prod.-No. 01765

Complete in transport case
Content: 1 Hydraulic punch type Compact aluminium
5 Tristar punches and dies M 16 - M 40
Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 mm
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 9,5 mm
1 HSS pre-drill Ø 10 mm
1 Set of distance bushes (3 pieces)

Inch sizes are available on request

Compact hand hydraulic – Sets

In aluminium version – weight only 1.6 kg • Made in Germany by ALFRA

Compact hand hydraulic punching set Tristar metric

	Prod.-No.
for mild steel (F = 370 N/mm²)	01758

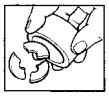
Complete in transport case
Content: 1 Aluminium compact hand hydraulic punch
7 Tristar punches and dies M 16 - M 63
Ø 16.2 - 20.4 - 25.4 - 32.5 - 40.5 - 50.5 - 63.5 mm
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 9.5 mm
1 HSS pre-drill Ø 10 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01758

Compact hand hydraulic punching set Tristar Plus PG

	Prod.-No.
for mild steel (F = 370 N/mm²) **and stainless steel**	01650

Complete in transport case
Content: 1 Aluminium compact hand hydraulic punch
8 Tristar Plus punches and dies
PG 9 - 11 - 13 - 16 - 21 - 29 - 36 - 42
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 11.1 mm
1 HSS pre-drill Ø 11.5 mm
1 Set of distance bushes (3 pieces)

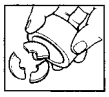


Prod.-No. 01650

Compact hand hydraulic punching set Tristar Plus Set – Metric

	Prod.-No.
for mild steel (F = 370 N/mm²) **and stainless steel**	01642

Complete in transport case
Inhalt: 1 Hydraulic punch type Compact aluminium
5 Tristar Plus punches and dies M 16 - M 40
Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 mm
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 11,1 mm
1 HSS pre-drill Ø 11,5 mm
1 Set of distance bushes (3 pieces)



Prod.-No. 01642

Compact hand hydraulic punching set Tristar Plus Metric

	Prod.-No.
for mild steel (F = 370 N/mm²) **and stainless steel**	01654

Complete in transport case
Inhalt: 1 1 Aluminium compact hand hydraulic punch
7 Tristar Plus punches and dies M 16 - M 63
Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 - 50,5 - 63,5 mm
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 11,1 mm
1 HSS pre-drill Ø 11,5 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01654

Compact Combi hand hydraulic – Sets Made in Germany by ALFRA

With 90° bent and 360° rotatable cylinder head. **In aluminium version – weight only 1.9 kg**

Especially suitable for congested spatial conditions.
Easy positioning of the die on the cross hairs due to single-handed operation.

Punching capacity		**Steel sheets**
Round holes up to	Ø 85 mm	2.0 mm F = 370 N/mm²
	Ø 64 mm	3.0 mm F = 370 N/mm²
Square holes	68 x 68 mm	2.0 mm F = 370 N/mm²
Rectangular holes	36 x 112 mm	2.0 mm F = 370 N/mm²
		Stainless steel sheets
Round holes up to	Ø 64 mm	2.5 mm F = 600 N/mm²

Weight:	1.9 kg
Punching force:	75 kN
Operating pressure max:	650 bar

Aluminium version **Weight only 1.9 kg**

Excess pressure valve
Extended tool life owing to a built-in pressure control valve.
"Automatic pressure switch off at 650 bar"

Prod.-No. 02050/02055
90° angled and 360° rotate-able

Compact Combi hand hydraulic

Prod.-No. 02050

Complete in transport case
Content: 1 Compact Combi hand hydraulic punches
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 9,5 mm
1 HSS pre-drill Ø 11 mm
1 Set of distance bushes (3 pieces)

Compact Combi Hand hydraulic punching set PG

Prod.-No. 02052

for mild steel (F = 370 N/mm²)

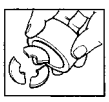
Complete in transport case
Content: 1 Compact Combi hand hydraulic punches
10 Standard punches and dies
PG 7 - 9 - 11 - 13 - 16 - 21 - 29 - 36 - 42 - 48
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 9,5 mm
1 HSS pre-drill Ø 11 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 02052

Compact Combi hand hydraulic Tristar PG punching set

Prod.-No. 01753

for mild steel (F = 370 N/mm²)



Complete in transport case
Content: 1 Compact Combi hand hydraulic punches
9 Tristar punches and dies
PG 9 - 11 - 13 - 16 - 21 - 29 - 36 - 42 - 48
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 9,5 mm
1 HSS pre-drill Ø 10 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01753

Compact Combi hand hydraulic set Tristar Set – Metric

Prod.-No. 01766

for mild steel (F = 370 N/mm²)

Complete in transport case
Inhalt: 1 Hydraulic punch type Compact Combi aluminium
5 Tristar punches and dies M 16 - M 40
Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 mm
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 9,5 mm
1 HSS pre-drill Ø 10 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01766

Inch sizes are available on request

Compact Combi hand hydraulic – Sets Made in Germany by ALFRA

With 90° bent and 360° rotatable cylinder head. **In aluminium version – weight only 1.9 kg**

Compact Combi hand hydraulic Tristar metric punching set

for mild steel (F = 370 N/mm²)	Prod.-No. 01759

Complete in transport case
Inhalt: 1 Compact Combi hand hydraulic punches
7 Tristar punches and dies M 16 - M 63
Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 - 50,5 - 63,5 mm
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 9,5 mm
1 HSS pre-drill Ø 10 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01759

Compact Combi hand hydraulic Tristar Plus PG punching set

for mild steel (F = 370 N/mm²) **and stainless steel**	Prod.-No. 01651

Complete in transport case
Content: 1 Compact Combi hand hydraulic puncher
8 Tristar punches and dies
PG 9 - 11 - 13 - 16 - 21 - 29 - 36 - 42
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 11,1 mm
1 HSS pre-drill Ø 11,5 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01651

Compact-Combi hand hydraulic set Tristar Plus Set – Metric

for mild steel (F = 370 N/mm²) **and stainless steel**	Prod.-No. 01643

Complete in transport case
Content: 1 Hydraulic punch type Compact Combi aluminium
5 Tristar Plus punches and dies M 16 - M 40
Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 mm
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 11,1 mm
1 HSS pre-drill Ø 11,5 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01643

Compact Combi hand hydraulic Tristar Plus Metric punching set

for mild steel (F = 370 N/mm²) **and stainless steel**	Prod.-No. 01655

Complete in transport case
Content: 1 Compact Combi hand hydraulic puncher
7 Tristar Plus punches and dies M 16 - M 63
Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 - 50,5 - 63,5 mm
1 Hydraulic screw Ø 19 mm
1 Hydraulic screw Ø 19 x 11,1 mm
1 HSS pre-drill Ø 11,5 mm
1 Set of distance bushes (3 pieces)

Prod.-No. 01655

For further supplementary sets see Page 24

Compact and Compact-Combi hand hydraulic

Supplementary sets

Supplementary sets

Puncher set Tristar metric

	Prod.-No.
for mild steel (F = 370 N/mm²) (without illustration)	01762

Complete in transport case
Content: 5 Tristar punches and dies M 16 - M 40
Ø 16.2 - 20.4 - 25.4 - 32.5 - 40.5 mm

Puncher set Tristar Plus Set – Metric

	Prod.-No.
for mild steel (F = 370 N/mm²) and stainless steel	01652

Complete in transport case
Inhalt: 5 Tristar Plus punches and dies M 16 - M 40
Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 mm

Prod.-No. 01652

Prod.-No. 01653

Supplementary sets

Puncher set Tristar metric

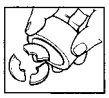
	Prod.-No.
for mild steel (F = 370 N/mm²) (without illustration)	01757

Complete in transport case
Content: 7 Tristar punch and dies M 16 - M 63
Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 - 50,5 - 63,5 mm

Puncher set Tristar Plus Metric

	Prod.-No.
for mild steel (F = 370 N/mm²) and stainless steel	01653

Complete in transport case
Content: 7 Tristar Plus punch and dies M 16 - M 63
Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 - 50,5 - 63,5 mm



Spare parts

Compact hand hydraulic punches, units	02005
Compact-Combi hand hydraulic punches, units	02055
Hydraulic screw Ø 19.0 mm	02002
Hydraulic screw Ø 19.0 x 9.5 mm	02003
Hydraulic screw Ø 19.0 x 6.0 mm	02022
Hydraulic screw Ø 19.0 x 11.1 mm	02007
Hydraulic screw Ø 19.0 x 9.5 mm*	02010
Hydraulic screw Ø 19.0 x 11.1 mm*	02011
Distance bushes (3 pieces)	02004
Pre-drill Ø 10.0 mm	08036
Pre-drill Ø 11.0 mm	08023
Pre-drill Ø 11.5 mm	08035

* Hydraulic screw made out of high-alloy tool steel for heavy duty application.

Inch sizes are available on request

ALFRA

Battery packed Compact Hydraulic Punch

FOR ROUND, SQUARE AND RECTANGULAR HOLE PUNCHING

NEW

ALFRA BATTERY PACKED COMPACT HYDRAULIC PUNCH

Made in Germany by ALFRA

Practical handling with high performance rechargeable battery of 18 V for round, square and rectangular punches for builders of control cabinets, panels and electrical system.

Extremely manageable and light, due to high guaranteeing tensile strength aluminum head.

- Light and handy, only 3.7 kg incl. the rechargeable battery.
- With pressure control valve
- High performance motor with ergonomic form designed hand grip „Soft-touch“
- The high performance rechargeable batteries can be inserted in two ways so you can obtain a weight counterbalance.

Technical Data:

Punching

Round holes	up to Ø 80mm diam. (3.0 mm mild steel (F = 370 N/mm²), 2.0 mm Chrome-Nickel-Steel)
Square /rectangular:	68 x 68 mm (3,0 mm mild steel (F = 370 N/mm²), 2.0 mm Chrome-Nickel-Steel) 92 x 92 mm only with special screw* and distance bush*. (2,0 mm mild steel F = 370 N/mm², 1.5 mm Chrome-Nickel-Steel)

Motor/Drive

Punch pressure	80 kN, with pressure control valve

Rechargeable battery	18 V, 3.0 Ah NiMH
Battery charge	45 min. after complete discharge
Charge cycles	~ 500 under normal circumstances
Working temperature	0° to +40°C, Capacity loss below 0°C

Universal battery charger

Charging all batteries 18 to 28 V, for Li-Ion, Ni-MH and Ni-Cd Batteries. Automatic temperature control. The change from quick-charge to trickle charge avoids overcharging of the rechargeable batteries.

Charge of battery indicated by LED indicator
PCB completely encapsulated.

Punching time/ Punching capacity

Ø 22.5 mm diam.	mild steel (F = 370 N/mm²)	
2 mm	5 sec.	190 holes per battery charge
Ø 63,5 mm diam.	mild steel (F = 370 N/mm²)	
2 mm	7 sec.	100 holes per battery charge
■ 68 x 68 mm	mild steel (F = 370 N/mm²)	
2 mm	7 sec.	70 holes per battery charge

Weight

3.7 kg with rechargeable battery.
2.7 kg without rechargeable battery.
7.8 kg complete set in transport case, without cutting tools.

Prod.-No. 02070

Scope of supply:	Prod.-No.
ALFRA battery packed compact hydraulic punch with 2 rechargeable batteries 18V, Battery charger 18 - 28 V Hydraulic screw - 9.5 x 19 mm – Prod.-No: 02003 Hydraulic screw - 19 x 120 mm – Prod.-No: 02002 Distance bush, 3 pieces – Prod.-No: 02004 Pre-drill Ø 11 mm diam. – Prod.-No: 08023	02070

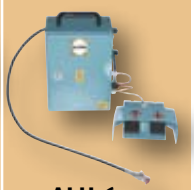
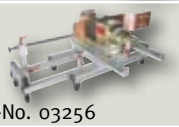
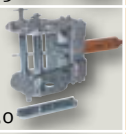
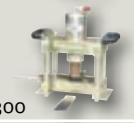
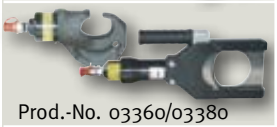
Packed in solid transport case. User's Manual.

Spare parts:	Prod.-No.
Extra battery	02071
Battery charger 220 V - 240 V	02072
ALFRA Compact Hydraulic Punch, without battery	02074
* Special screw for the square ■ 92 x 92 mm punch	01395
* Special distance bush for the square ■ 92 x 92 mm	01396

Prod.-No. 02072

Prod.-No. 02071

Pump Overview

Recommended combination ■■ / Possible combination ■	**AEP-1 Foot pump** Prod.-No. 02121	**AHP 03-01** Prod.-No. 03853	**SC-05 III B** Prod.-No. 03852	**DSP-120** Prod.-No. 02027	**LHP 700** Prod.-No. 02140	 **ALH 600** Prod.-No. 03190
Prod.-No. 02012/02013	■■	■■		■■	■	■
Prod.-No. 03200		■	■■			
Prod.-No. 03250	■	■■	■	■■	■	■
 Prod.-No. 03256	■	■■		■■	■	■
Prod.-No. 03258	■	■■		■■	■	■
Prod.-No. 03253		■	■■	■		
 Prod.-No. 03750	■	■■		■■		
Prod.-No. 03260	■	■■		■■	■	
 Prod.-No. 03300	■	■■		■■		
 Prod.-No. 03360/03380	■■	■■		■■		
AP 250		■■			■	■■
AP 400		■■			■	■■

ALFRA Hydraulic Punch – Compact Flex Handhydraulik

Handy hand punch with hydraulic hose and cylinder. Aluminum design – weight only 2.0 kg • Made in Germany

- The perfect device if space is limited.

Capacity		**sheet metal**
Round holes up to	Ø 85 mm	2,0 mm F = 370 N/mm²
	Ø 64 mm	3,0 mm F = 370 N/mm²
Square holes	68 x 68 mm	2,0 mm F = 370 N/mm²
Rectangular holes	36 x 112 mm	2,0 mm F = 370 N/mm²
		Stainless steel
Round holes up to	Ø 64 mm	2,5 mm F = 600 N/mm²
Rectangular holes	68 x 68 mm	2,0 mm F = 600 N/mm²

Weight:	2,0 kg
Punch pressure:	75 kN
Operating pressure:	650 bar
Hydraulic hose length:	600 mm

Prod.-No. 02065

Scope of supply:
1 Compact Flex Hand Hydraulic Punch
1 Hydraulic screw Ø 19,0 mm
1 Hydraulic screw Ø 19,0 x 9,5 mm
1 HSS-pre-drill Ø 11,0 mm
1 distance bush, 3-pieces

	Prod.-No.
Compact Flex Hand Hydraulic complete with transport case	02065
Compact Flex Hand Hydraulic Puncher, (unit)	02066

Prod.-No. 02066

ALFRA Hydraulic Puncher – AEP-1 with foot pump

Made in Germany

- Max. operating pressure 700 bar.
- Built-in pressure control valve.
- For all round, square, rectangular and special-shape punchers.
- The foot pump leaves both hands free for exact positioning and punching on a switchgear cabinet. The foot pump carrier frame is spread. Safe standing, stability against tilting is therefore guaranteed.

Tank volume	270 cm³
Useful oil volume	210 cm³
Pump capacity	1.7 cm³ per piston stroke

Content:
1 Hydraulic cylinder with quick-action clutch
1 Hydraulic hose 2.8 m
1 Hydraulic screw Ø 19.0 and 19.0 x 9.5 mm
1 Set of distance bushes (5 pieces)
1 Pre-drill Ø 11.0 mm
without punches and dies

	Prod.-No.
Complete in sheet steel transport boxes	02120
Individual foot pump, with 2.8 m hydraulic hose and quick coupling	02121

Prod.-No. 02120

Option: Two-stage version 700 bar

- To reduce stroke running time
- With pressure control valve
- Lateral manometer connection hole 1/4" NPT
- Connection hole for hydraulic hose 1/4" NPT

Technical Data:

1. Stage	20 bar
2. Stage	700 bar
Pumping volume of 1st stage:	10.3 cm³ per piston stroke
Pumping volume of 2nd stage:	2.2 cm³ per piston stroke
Tank capacity:	500 cm³

Foot pump, 2 stage, without hydraulic hose	02020

ALFRA Electro hydraulic pump – AHP 03-01

Technical Data:

Motor tension:	230V / 50Hz (110V / 50/60Hz on request)
Motor capacity:	0.55 KW at 2.720 rpm.
Max. operating pressure:	700 bar (unpressurised circulation)
Flow rate:	0.62 l/min. at 60Hz 0.52 l/min. at 50Hz
Tank volume:	2.5 L (useable: 1.5 liter)
Temperature switch:	80°C +/- 5°
Weight:	17 kg
Dimension L x W x H:	330 x 180 x 350 mm

	Prod.-No.
Electro hydraulic pump AHP 03-01, complete with hand-switch 2,0 m hydraulic hose and quick coupling	03853
Optional available:	
Foot switch with 2-pedals; start-stop function	03866

Prod.-No. 03853

For all single-action hydraulic cylinders

ALFRA HYDRAULIC PUNCHER – DSP-120

With electrohydraulic pump
Compact electric pump, two-stage operation with holding function for single-acting hydraulic cylinder.

Technical Data

Operating voltage:	230 V / 50 Hz
Motor power:	0.4 kW
Max. operating pressure:	700 bar
Pump capacity 0 - 20 bar:	2.0 l/min
Pump capacity 20 -700 bar:	0.2 l/min
Tank volume:	1.2 l
Useful oil volume:	0.8 l
Weight approx:	7.5 kg

	Prod.-No.
Electrohydraulic pump, complete with accessory	02025

Content:
❶ 1x Hydraulic cylinder with quick coupling
❷ 1x Hydraulic hose 1.8 m
❸ 1x Hydraulic screw Ø 19.0 and 19.0 x 9.5 mm
❹ 1x Distance bushes set multiple piece
❺ 1x Pre-drill Ø 11,0 mm
❻ 1x Hand switch
without punches and dies

Electrohydraulic pump, units, 220 V, with 1.8 m hydraulic hose, quick coupling and hand switch, without hydraulic cylinder	02027
Foot switch 2-pedals	02029
Hand switch with 2 buttons	02030

Prod.-No. 02025

ALFRA AIR HYDRAULIC PUMP – LHP 700

Air-hydraulic pump up to 700 bar
Good-value alternative for existing air supply (min 2.8 bar)

for operating single-acting hydraulic cylinders for punchers, cable pliers, pressing devices or similar applications. Also suitable as drive for ALFRA PRESS 250 and 400.

- Robust tank
- Tank ventilation filter
- Reduced noise level
- Oil level indicator on the tank
- Precise starting under load is possible
- Exact control – the relief operated via pedestal valve allows an exact lowering of load
- Hydraulic hose 2.0 m with quick coupling

Technical Data:

Max. operating pressure: (for a feed pressure of 7 bar)	700 bar
Feed line pressure/working range	2.8 - 10 bar
Air connection:	1/4“ G
Pump capacity, pressureless:	1.0 l/min
Pump capacity p max. (with 7 bar air):	0.1 l/min
Tank volume:	2.4 l
Useful oil volume:	2.1 l
Weight:	6.3 kg

	Prod.-No.
Air-hydraulic pump, complete	02140

Prod.-No. 02140

Accessories – Tie bolts for hydraulic operation

Made in Germany by ALFRA

		Prod.-No.
Hydraulic screw	6.0 x 46 mm	02024
Adapter	19.0 x 6.0 mm	02023
Hydraulic screw compl.	19.0 x 6.0 mm	02022
Hydraulic screw	9.5 x 75 mm	02009
Adapter	19.0 x 9.5 mm	01353
Hydraulic screw compl.	19.0 x 9.5 mm	02003
Hydraulic screw compl.	19.0 x 9.5 mm *	02010
Hydraulic screw	11.1 x 75 mm	01424
Adapter	19.0 x 11.1 mm	01425
Hydraulic screw compl.	19.0 x 11.1 mm	02007
Hydraulic screw compl.	19.0 x 11.1 mm *	02011
Hydraulic screw	19.0 x 120 mm	02002

* Hydraulic screw made out of high-alloy tool steel for heavier duty application

Prod.-No. 02003 – complete

Prod.-No. 02007 – complete

Prod.-No. 02002 – complete

Accessories – for hydraulic pumps

		Prod.-No.
Hydraulic hose for AEP-1 foot pump	2.80 m	02122
Hydraulic hose for LHP 700	2.00 m	02112
Hydraulic hose for DSP 120	2.50 m	02026
Hydraulic hose for AHP 03-01	2.00 m	02116
Hydraulic hose for Compact Flex	0.60 m	02117

Prod.-No. 02112

Accessories – for hydraulic cylinder

	Prod.-No.
Hydraulic cylinder SKP-1 with quick coupling (up to 11 t) Weight 2,5 kg	02012
Hydraulic cylinder SKP-1 Mini with quick coupling (up to 7 t) Weight 0,86 kg only, Square holes up tp 68 x 68 mm	02013
Distance bushes set (5 pieces)	02014
Pre-drill Ø 10.0 mm	08036
Pre-drill Ø 11.0 mm	08023
Pre-drill Ø 11.5 mm	08035
Pre-drill SVB with 5 drill Ø 8.5/11.5/12.5/16.5/21.0 mm	08016
Steel-sheet transport box for foot pump L x W x H: 500 x 260 x 180 mm	02124

Prod.-No. 02012

Prod.-No. 02013

Prod.-No. 08023

Prod.-No. 02014

Prod.-No. 02124

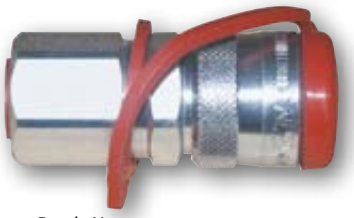
Prod.-No. 08016

Quick connection couplings – for ALFRA hydraulic devices

- non-drip coupling and decoupling
- handy operability
- dust protection cap
- operating pressure up to 1000 bar

	Prod.-No.
Locking coupling with internal threads 1/4“ (mounted on hose end)	01452
Closing nipple with internal threads 1/4“ (mounted on cylinder)	01453
Adapter R 1/4“ outside thread	01454

Prod.-No. 01453



Prod.-No. 01452

Hydraulic oil – for ALFRA hydraulic pumps

For refilling all hydraulic pumps

	Prod.-No.
1 Litre hydraulic oil HLP 46	01455

Caution:
Observe extreme cleanliness when refilling hydraulic units!

Prod.-No. 01455

ALFRA – Special Metal Lubricating paste

Against seizure and wear

Fields of application:

- Prevents seizure, wear, cold-welding, fusing and fretting corrosion of the threads of screws, nuts, bolts, pipe threads and fittings.
- ALFRA special metal lubricating paste is excellently suitable for lubricating the cutting tips for punching tools and heavy-duty stress on bearing and sliding surfaces.
- Active separation and silicon-free.
- Content: 120 g

	Prod.-No.
ALFRA special metal lubricating paste	33005

Certainly recommendable for application of punchers by means of screw spanners.

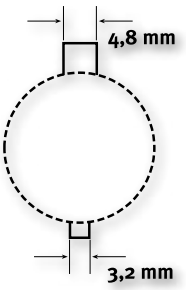
Prod.-No. 33005

ALFRA – Notch pliers

- Easily and quickly punches notches in sheet metals of up to 2.5 mm thickness.
- Spares one from the time-consuming filing of grooves for anti-twist protection of push buttons, switches and instruments.
- Notch sizes in 3.2 mm and 4.8 mm possible.
- Long tool life because punch and die are made out of hardened tool steel.
- Easy punching due to large leverage.
- Handgrips are plastic coated.
- Weight 1.3 kg

The notch puncher is inserted into the pre-punched opening, aligned to the cross-hairs marking and then the pliers is actuated.
A clean notch is ready!

Prod.-No. 03015



	Prod.-No.
ALFRA Notch pliers	03015

Spare parts	**Prod.-No.**
Notch puncher with rivet pin	030151

ALFRA

DIN Rail Cutting Devices

No more metal chips and no more deburring!

- Ergonomic hand lever for optimum force transmission

- Guiding apparatus for accurate cutting of a 90° angle

- Reinforced eccentric cam on a solid shear blade
  Integrated length-stop (metric/inches)

- Standing legs for stable fastening

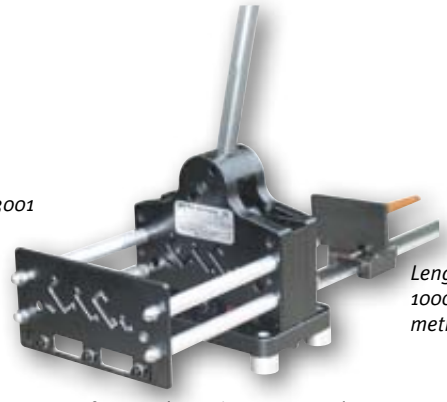
ALFRA – Universal Cutting and Punching Equipment

Made in Germany by ALFRA

For DIN carrier rails, for hand lever operation for cutting pieces to length and punching the depicted carrier rails longitudinally and transversely.

- with reinforced eccentric that lies directly over the shearing blade
- less use of force due to better force transfer
- burr-free cutting without loss
- maintenance free
- with 1000 mm length stop limit and guide apparatus for accurate angular cuttings.
- resharpening of shearing blade, exchangeable punch
- special fabrications are also possible
  (Please send in sample rails of approx. 1000 mm length).

Prod.-No. 03001



Length stop 1000 mm metric and inch

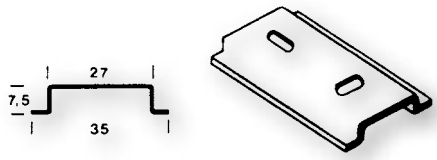
Guide apparatus for exactly cutting a 90°-angle

Scope of delivery of standard version	Prod.-No.
Cpl. with transverse and longitudinal punch 12 x 6,4 mm, 1000 mm length stop and guiding device	03001*
Cpl. with transverse and longitudinal punch 12 x 6,4 mm, 1000 mm length stop and guiding device	03001GPROFIL*
as above, but with **round** punches 5.5 **or** 6.0 mm Ø	03002
as 03001. but with hydraulic cylinder (without drive)	03003

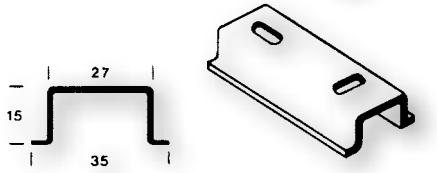
*Please indicate if you need C or G Profil.

Standard version

Carrier rail 35 mm/7.5
accord. to EN 60715

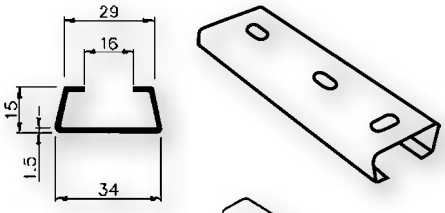


Carrier rail 35 mm/15
accord. to EN 60715



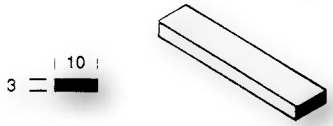
NEW

C. Profile 3415



Carrier rail 15 mm/5.5
accord. to EN 60715

Copper earthing rail
10 mm x 3 mm



Prod.-No. 03003 (without pump)
We recommend our electrohydraulic pump as drive DSP 120 (Prod.-No. 02027) **or** *AHP 03-01 (Prod.-No. 03853).*

Spare parts for Universal Cutting and Punching Equipment

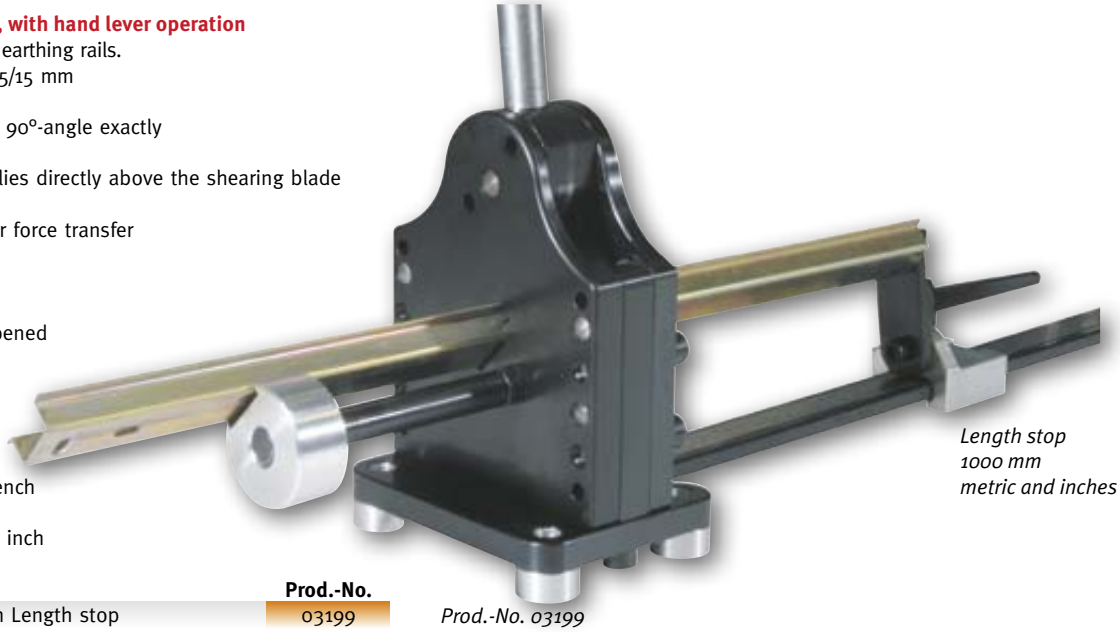
	Prod.-No.
Spare punch + die 12 x 6.4 mm for oblong hole	03005
Spare punch + die 12 x 6.4 mm for cross hole	03006
Spare punch + die 5.5 mm for round hole	03007
Spare punch + die 6.0 mm for round hole	03008
Guiding apparatus, units	03012
Special versions for carrier rails or flat rails, also made of stainless steel or aluminium as well as plastic, upon request	03011

ALFRA DIN Rail Cutting Unit – Duo

Made in Germany by ALFRA

For the most popular carrier rails, with hand lever operation
Exactly and easily cuts profile and earthing rails.
Standard version for TS 35/7,5 + 35/15 mm

- Guide apparaturs for cutting a 90°-angle exactly
- With reinforced eccentric that lies directly above the shearing blade
- Less use of force due to better force transfer
- Maintenance free
- Shearing blade can be resharpened
- Burr-free cutting without loss
- Length stop 1000 mm
- Easy assembly on the work bench
- Measure alignment metric and inch



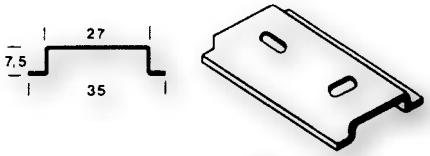
Length stop 1000 mm metric and inches

	Prod.-No.
Standard version, complete with Length stop and guiding apparatus	03199

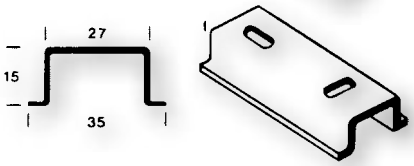
Prod.-No. 03199

Carrier rails

Carrier rail 35 mm/7,5
Acc. to EN 60715



Carrier rail 35 mm/15
Acc. to EN 60715



Shearing blade

Reinforced eccentric

Guide apparatus for cutting a 90°-angle exactly

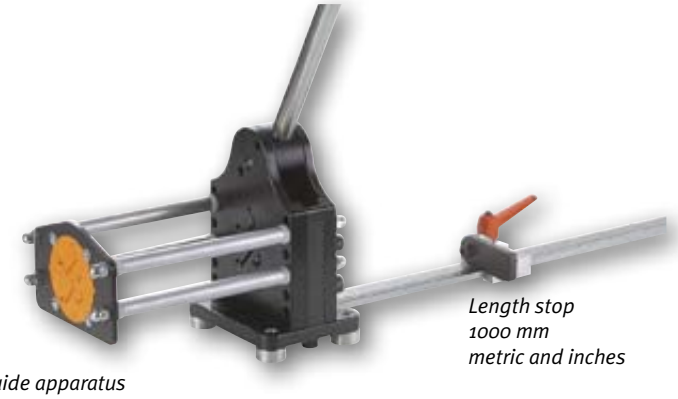
ALFRA DIN Rail Cutting Unit – ALC-02

Made in Germany by ALFRA

For DIN carrier rails with hand lever operation

Exactly and easily cuts profile and earthing rails.
Standard version for TS 35/7.5 - 35/15 - 15/5.5 - Cu 10.0 x 3.0 mm

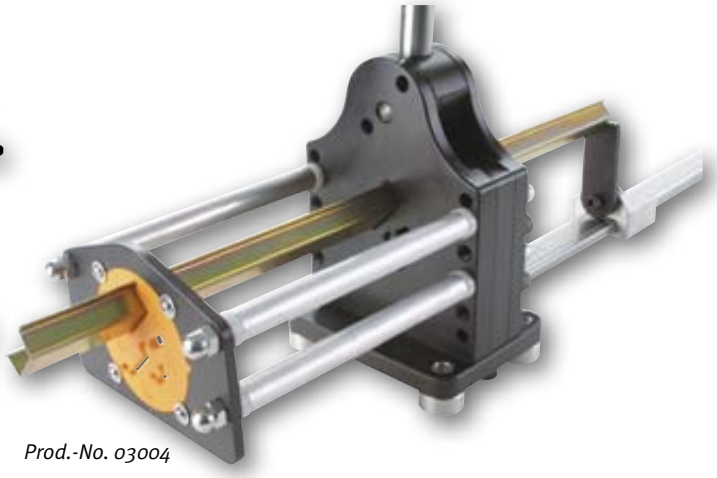
- With reinforced eccentric that lies directly above the shearing blade
- Less use of force due to better force transfer
- Burr-free cutting without loss
- Maintenance free
- Length stop 1000 mm
- Shearing blade can be resharpened
- Guide apparatus for exactly cutting a 90°-angle
- Easy assembly on the work bench
- Also special fabrications are possible
  (Please send in sample rails of approx. 1000 mm length).



Length stop
1000 mm
metric and inches

	Prod.-No.
Standard version, complete with length stop and guiding apparatus	03004

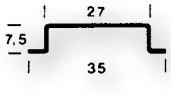
Guide apparatus
for exactly cutting 90°-angles

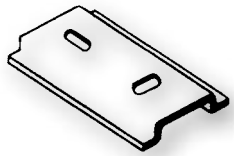


Prod.-No. 03004

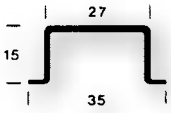
Standard version

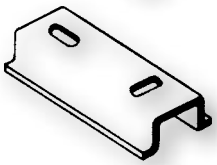
Carrier rail 35 mm/7.5
accord. to EN 60715



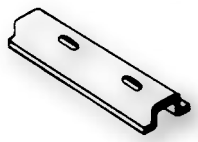


Carrier rail 35 mm/15
accord. to EN 60715

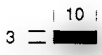


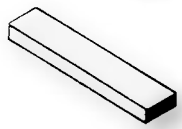


Carrier rail 15 mm/5.5
accord. to EN 60715

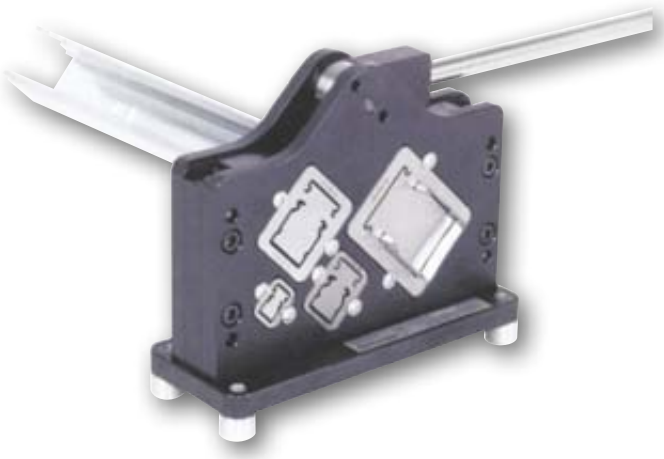


Copper earthing rail
10 mm x 3 mm





Special fabrication for special profiles like e.g. cable ducts upon request!



ALFRA

Wiring duct cutting tool

No more noise – no more plastic chips – reduced accident danger!

- Ergonomic hand lever for optimum force transmission
- Hardened cutting of special steel
- Length-stop (metric/inches – laser engraved)
- Foldable, spring-loaded knife protection

ALFRA Wiring duct cutting device – VKS 125

Made in Germany by ALFRA

Cuts wiring ducts exactly and easily and covers up to 125 mm width in seconds.
Fastening tabs are on the tool as well as on the length stop for easy assembly on the work bench.
The VKS 125 is provided with a spring knife protection, which covers the knife when not in use.

- hand lever operation
- burr-free cutting without loss
- exact 90°-angle cutting
- less force applied when cutting
- length stop 1000 mm, metric and inches
- knife can be resharpened
- maintenance free
- easy assembly on the work bench

„...never again plastic chips and never again deburring!“

	Prod.-No.
Standard version, complete with length stop	03191
Spare knife for VKS 125	03192

Prod.-No. 03191

Amortisation calculation for machine type ALC-2 and VKS 125

Assumption:
Daily at least 10 cuts of profile rails or wiring ducts

1. Conventional machining:

a1)	Number of cuts per day	=	10 pieces
b1)	Working time per cut (includes providing the auxiliary tools, measuring, marking, cutting to size, deburring etc.)	=	2.00 min
c1)	Cost of labour per minute	=	€ 0.70

Result:
The cost incurred daily is € 14.00 (10 x 2.00 x 0.70)

2. Machining with DIN rails cutting tool or wiring duct cutting tool

a2)	Number of cuts per day	=	10 pieces
b2)	Working time per cut	=	0.3 min
c2)	Cost of labour per minute	=	€ 0.70

Result:
Cost incurred daily is € 2.10 (10 x 0.3 x 0.70)

Difference between 1 and 2 = € 11.90 per work day

Cutting tool Prod.-No. 03004 VK = € 995.00 : 11.90 = **84 days**

Cutting tool Prod.-No. 03191 VK = € 785.00 : 11.90 = **66 days**

For 250 work days per annum the amount saved is approx. € 2 975.00.

ALFRA

Busbar Machining

Bending	120 x 12 mm
Punching	Ø 6,6 - 21,5 mm
Cutting	125 x 12 mm

Prod.-No. 03853

Prod.-No. 03852

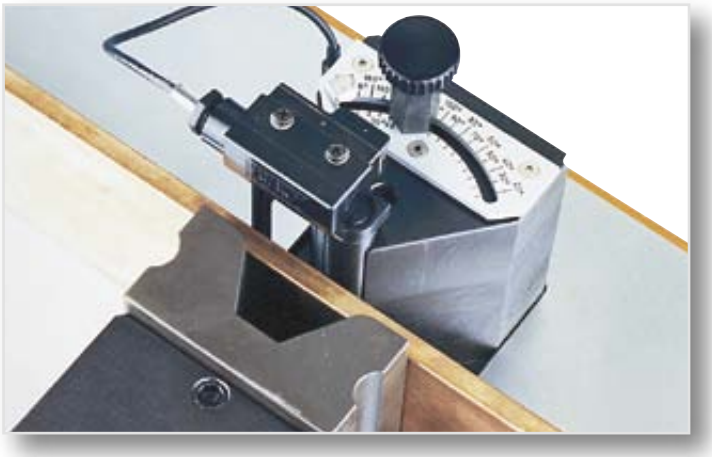
ALFRA Busbar bending and punching machine

For Busbars 120 x 12 mm • Made in Germany by ALFRA

With a universal working cylinder, busbars 120 x 12 mm (160 x 10 mm upon request) can be easily bent and by simple insertion of punches, holes of Ø 6.6 up to 21.5 mm and oblong holes can be punched.

Bending busbars

Switch position on „bending".
When bending, the bending die is inserted in the hydraulic piston and the electric angle reader is set in the round guide nut of the counter block. The contact cable is connected with the electric motor.
The desired angle is fixed on the angle scale with a set screw. We recommend, depending upon material thickness, to set 1° - 3° above the desired angle because copper springs back.
The first bending angle should be tested. This bending angle can be reproduced as often as desired because the bending process is automatically interrupted by the electric contact switch upon attaining the angle.



Punching the busbars

Switch position on „punching".
The punch with neoprene stripper and the corresponding die are inserted in the mounting hole.
The punch is laterally fixed by means of a set screw. The machining block can be lifted or lowered in an infinitely variable manner with the hand wheel hydraulically in correspondence with busbar width and desired arrangement of holes. A counter fixed on the hand wheel shows the height of hole centre.
We recommend centre-punching the busbar with subsequent alignment of the cantering tip of the punch on this point – this ensures that an exact hole pattern is attained.

The neoprene stripper and a built-in electric sensor cater for an automatic punch relief.

Technical Data:

Bending

Bending Cu + Al max:	120 x 12 mm
Bending angle up to:	over 90°
Smallest length of leg:	50 mm
Smallest U-bending:	100 mm
Smallest Z-bending:	72 mm (material thickness dependent)

The specified values are based on a Cu rail 120 x 10 mm

Punching

Punching Cu + Al:	6.6 - 21.5 mm also oblong hole up to max. L = 21 mm
Material thickness Cu + Al max:	12 mm
Material width up to:	110 mm centric
L x W x H:	700 x 410 x 410 mm
Weight:	60 kg

Special version for machining busbars of up to 160 x 10 mm available upon request.

ALFRA Busbar bending and punching machine

For Busbars 120 x 12 mm • Made in Germany by ALFRA

	Prod.-No.
Basic machine with safety protective cover and control cable	03200
Electric angle reader R10 with connection cable	03201
Bending die R10	03202
Other bending radii available upon request!	
Length stop with fine adjustment	03203
Bending die with movable jaws (120 x 10 mm Cu)	03228
Digital measuring system of the bending angle	03229
Upper floor bending tool with 2 pairs of pressure plates for 5 - and 10 mm steps (max. range: 100 x 5 mm/60 x 10 mm Cu)	03246

Prod.-No. 03200 with accessories

Electrohydraulic pump SC-05 III B

Technical Data:

Motor voltage:	230 V / 50 Hz (110V / 50 or 60Hz on request)
Motor capacity:	0.55 kW
Max. operating pressure:	700 bar
Presetting:	620 bar
Flow rate:	0.9 l/min.
Tank volume:	5.0 l
Weight approx:	29 kg
Dimension L x W x H:	500 x 230 x 370 mm

	Prod.-No.
Electrohydraulic pump SC-05 III B with 2.0 m high-pressure hose + quick connector	03852
Optional available:	
Foot switch for start function, 1 pedal	03861
Foot switch for start-stop-off function, 3 pedals	03865

Freely programmable digital measuring system for the bending angle up to above 90°

Applicable for the machines Prod.-No. 03200 and 03980

R10

Prod.-No. 03229

Prod.-No. 03201

Prod.-No. 03228

Prod.-No. 03202

Electrohydraulic pump AHP 03-1

Technical Data:

Motor voltage:	230V / 50Hz (110V / 50 or 60Hz on request)
Motor capacity:	0.55 kW
Max. operating pressure:	700 bar
Flow rate:	0.62 l/min. at 60Hz 0.52 l/min. at 50Hz
Tank volume:	2.5 l
Temperature switch:	80°C +/- 5°
Weight:	17 kg
Dimension L x W x H:	330 x 180 x 350 mm

	Prod.-No.
Electro hydraulic pump AHP 03-01 complete, with handswitch, With 2.0 meter hydraulic hose + quick connector	03853
Optional available:	
Foot switch with 2-pedals; start-off function	03866

Prod.-No. 03852

Prod.-No. 03853

ALFRA Busbar bending and punching machine

For Busbars 120 x 12 mm • Made in Germany by ALFRA

	Prod.-No.
Complete Set 1:	03910

Prod. no.: 03200
Basic machine with safety protective cover and control cable
Prod. no.: 03201 Electrical angle reader R10 with connection cable.
Prod. no.: 03202 Bending Die R10
Prod. no.: 03203 Length stop with fine adjustment
Prod. no.: 03852 Electro-Hydraulic Pump **SC05 III B**

Prod.-No. 03910

	Prod.-No.
Complete Set 2:	03920

Prod. no.: 03200
Basic machine with safety protective cover and control cable
Prod. no.: 03201 Electrical angle reader R10 with connection cable.
Prod. no.: 03202 Bending Die R10
Prod. no.: 03203 Length stop with fine adjustment
Prod. no.: 03853 Electro-Hydraulic Pump **AHP 03-1**

Prod.-No. 03920

Accessories

Available punches and dies

Punch Ø mm		Metric screw connection		Prod.-No.
6,6	x	6,0	up to 5 mm material thickness	03204
9,0	x	8,0	up to 6 mm material thickness	03205
9,5	x	8,0	up to 6 mm material thickness	03206
11,0	x	10,0	up to 12 mm material thickness	03207
11,5	x	10,0	up to 12 mm material thickness	03208
13,5	x	12,0	up to 12 mm material thickness	03209
14,0	x	12,0	up to 12 mm material thickness	03210
17,5	o	16,0	up to 12 mm material thickness	03211
18,0	o	16,0	up to 12 mm material thickness	03212
21,0	o	20,0	up to 12 mm material thickness	03213
21,5	o	20,0	up to 12 mm material thickness	03214

x with neoprene stripper and pressure plate
o with neoprene stripper without pressure plate

Dies -S-		Prod.-No.	Dies -L-		Prod.-No.
	max. mat. thickness			max. mat. thickness	
6,6	5	03215	6,6	5	03230
9,0	5	03216	9,0	6	03231
9,5	5	03217	9,5	6	03232
11,0	5	03218	11,0	12	03233
11,5	5	03219	11,5	12	03234
13,5	5	03220	13,5	12	03235
14,0	5	03221	14,0	12	03236
17,5	5	03222	17,5	12	03237
18,0	5	03223	18,0	12	03238
21,0	5	03224	21,0	12	03239
21,5	5	03225	21,5	12	03240

Punch and dies for long holes up to max. L = 21 mm	Prod.-No.
up to 5 mm material thickness	03226
up to 12 mm material thickness	03241

Oblong hole punch and die

ALFRA BUSBAR CUTTING MACHINE – S 125

MADE IN GERMANY BY ALFRA

For clean and burr-free cutting of copper and aluminium busbars 125 x 12 mm.

- Ideal supplementary machine for busbar bending and punching machine.
- Cutting time with electrohydraulic pump depending upon rail width 5 - 15 sec.
- Down-holder and guiding device for centring and accurate cutting.
- Top knife can be exchanged and retrofitted.
- Weight: 16 kg

	Prod.-No.
Basic machine cpl. with quick coupling, vice with centring jaws and down-holder	03250
Spare top knife	03251

When using the electrohydraulic pump SC-05 III B in direct connection with the cutting machine, we recommend the application of a foot switch with START – STOP – OFF function.

Foot switch with START – STOP – OFF (Connection directly to the basic machine 03200)	03865
Foot switch with START – STOP – OFF (Connection directly to the hydraulic pump 03852)	03863

We selectively recommend as drive:

Electrohydraulic pump AHP 03-01	03853
Electrohydraulic pump DSP 120	02027

Prod.-No. 03250

When using customer's own drives up to 700 bar, please specify coupling size when placing an order.

ALFRA – WORKSHOP CART

Made in Germany by ALFRA

For busbar bending and punching machine 03200 as well as the busbar cutting machine 03250

Ideal for transporting – also in vans with shelving equipment

Specially developed workshop cart, in order to accommodate both machines whilst saving space. Inside the vehicle the electrohydraulic pump can be connected to an already existing 2-way valve. The machines are amongst themselves coupled with hydraulic hoses. 2 Laterally mounted bearing rollers on the table facilitate bending and cutting of longer rails.
The cart additionally has a drawer with tools compartments for keeping all punches and dies. The cart moves on 4 running rollers, 2 of which are provided with catches.

The equipment includes a single and a double socket outlet and a self recoiling 230 V connection line in 3 metres length.

Table size:	1050 x 700 mm
Dimensions:	L=1150. W=700. H=900 mm
Weight:	100 kg without machines

	Prod.-No.
Workshop cart, ready for connection, with 2-way valve, Coupling, drawer with tools compartments **(without machines and drive)**	03950

Prod.-No. 03950 (delivery without machine)

ALFRA Combi machining cart – 4-Stations

For copper and aluminium rails ▸ Made in Germany by ALFRA

For
- **Bending busbars 120 x 12 mm,**
- **Punching busbars Ø 6.6 - 21.5 mm,**
- **Cutting busbars 125 x 12 mm,**
- **Cable shoe pressing from 10 - 300 mm²,**
- **Punching all PG-sizes as well as square and specially shaped holes.**

- The machining stations for bending busbars and punching as well as cutting are sunk in the table. They facilitate quick and clean working.
- The universal working cylinder can be raised and lowered by means of a hand-wheel in an infinitely variable manner by hydraulic means according to the hole pattern to be punched.
- The machining units are coupled to an hydraulic central unit located inside the cart.
- A laterally extractable extension is provided as support pad for longer rails.
- To the 2 additional laterally attached hydraulic hoses, pressing heads (e.g. pressing head 10 - 300 mm² Prod.-No. 03360) and the hydraulic cylinder Prod.-No. 02012 for punching holes are connected.
- 1 foot switch belongs to the scope of delivery. Up to 3 **additional** foot switches can be connected to different stations.
- In the cart there are 4 tools drawers with compartments for punches and dies.
  It is movable on 4 running rollers, of which 2 are provided with locks.

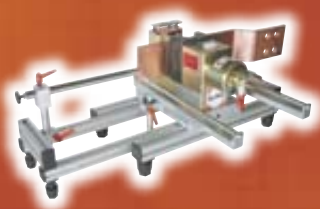
Prod.-No. 03980 (delivery without additional machines)

Technical Data:

Motor voltage:	400 V / 50 Hz
Motor power:	1.1 kW
Max. operating pressure:	700 bar
Presetting:	600 bar
Pump capacity:	0.88 l/min.
Tank volume:	17.0 l
Useful oil volume:	13.0 l
Weight approx:	240 kg
Table size:	1150 x 700 mm
Dimension L x W x H:	1250 x 760 x 1.210 mm

	Prod.-No.
Machining cart ready for operation	03980
Required extra accessory Punch and dies Ø 6.6 - 21.5 mm Prod.-No. 03204 - 03225 Prod.-No. 03204 - 03225	
Hydraulic press head 10 - 300 mm²	03360
Hydraulic cylinder	02012
Hydraulic screw 19.0 mm	02002
Hydraulic screw Ø 19.0 x 9.5 mm Distance bushes set (5 pieces)	02003 02014
Foot switch with connection cable 3-pole	03861

Inside the cart there are 4 tools drawers with compartments for punches and dies.

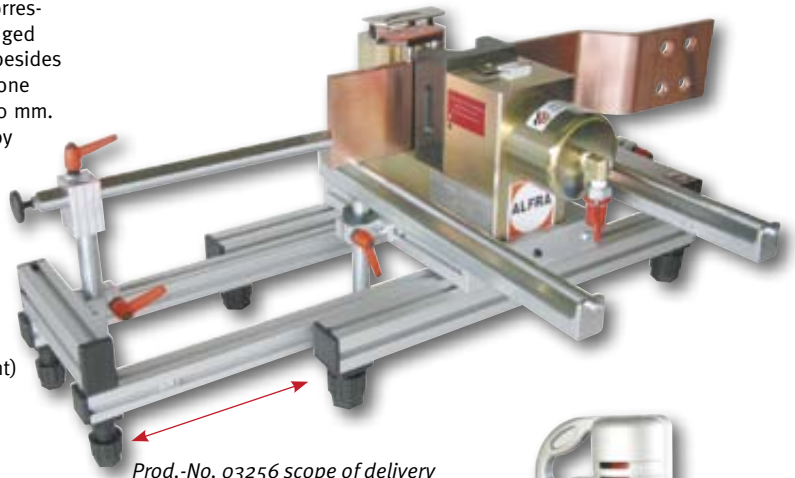


ALFRA Busbar bending and punching machine – LPV

For copper and aluminium rails ▸ Made in Germany by ALFRA

Busbar bending up to 120 x 12 mm
Busbar punching Ø 6.6 up to 21.5 mm

The machine comprises a main frame made of a box aluminium profile with the receptacle for basic body. For bending and punching there are corresponding adjustable height supports with rollers which can be exchanged easily. For the adjustment of hole pattern a length stop is provided besides the adjustable height. To facilitate working with longer copper rails, one can extend the retractable frames with support bracket to approx. 700 mm. All stops and support brackets can be fixed very quickly and easily by means of clamping levers.



Prod.-No. 03256 scope of delivery without punches and dies

We recommend our hydraulic pump as drive DSP 120. Prod.-No. 02027 **or** *Prod.-No. 03853*

Technical Data:

Bending:

Bending Cu max:	120 x 12 mm
Bending angle up to:	over 90°
Smallest length of leg:	50 mm
Smallest U-bending:	100 mm
Smallest Z-bending:	72 mm (material thickness dependent)

The specified values are based on a Cu rail 120 x 10 mm

Punching:

Punching Cu:	Ø 6.6 -21.5 mm also long hole up to max. L = 21 mm
Material thickness Cu max:	12 mm
Material width up to:	110 mm centric
Dimension L x W x H:	615 x 370 x 315 mm
Weight:	44 kg

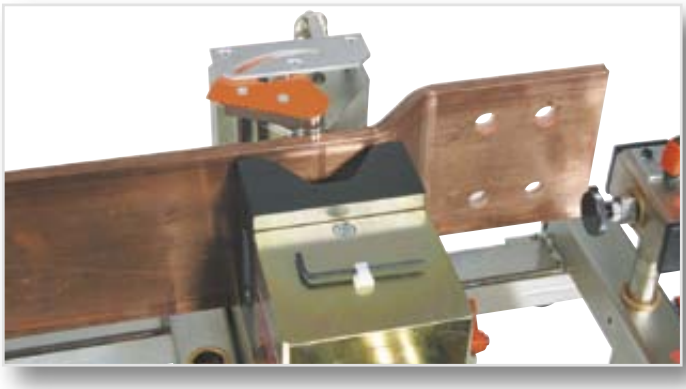
	Prod.-No.
Basic machine compl. with bending die and angle display (without drive)	03256

Accessories

Available punches and dies

Punch Ø mm		Metric screw connection		Prod.-No.
6,6	x	6,0	up to 5 mm material thickness	03204
9,0	x	8,0	up to 6 mm material thickness	03205
9,5	x	8,0	up to 6 mm material thickness	03206
11,0	x	10,0	up to 12 mm material thickness	03207
11,5	x	10,0	up to 12 mm material thickness	03208
13,5	x	12,0	up to 12 mm material thickness	03209
14,0	x	12,0	up to 12 mm material thickness	03210
17,5	o	16,0	up to 12 mm material thickness	03211
18,0	o	16,0	up to 12 mm material thickness	03212
21,0	o	20,0	up to 12 mm material thickness	03213
21,5	o	20,0	up to 12 mm material thickness	03214

x with neoprene stripper and pressure plate
o with neoprene stripper without pressure plate



Dies -S- max. mat. thickness		Prod.-No.	Dies -L- max. mat. thickness		Prod.-No.
6,6	5	03215	6,6	5	03230
9,0	5	03216	9,0	6	03231
9,5	5	03217	9,5	6	03232
11,0	5	03218	11,0	12	03233
11,5	5	03219	11,5	12	03234
13,5	5	03220	13,5	12	03235
14,0	5	03221	14,0	12	03236
17,5	5	03222	17,5	12	03237
18,0	5	03223	18,0	12	03238
21,0	5	03224	21,0	12	03239
21,5	5	03225	21,5	12	03240

Punch and dies for long holes up to max. L = 21 mm	Prod.-No.
up to 5 mm material thickness	03226
up to 12 mm material thickness	03241

Oblong hole punch and die

Round punches and dies

Inch sizes are available on request

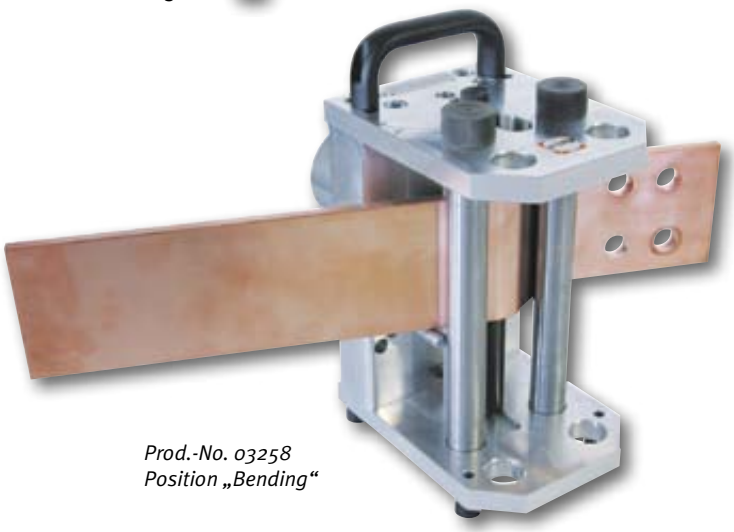
ALFRA Busbar Bending and Punching Device – BS 160 Combi

Made in Germany by ALFRA

- This device comprises of a base frame made of a special aluminium and a hydraulic cylinder up to 600 bar.
- By means of a bending die R=11 mm and R=5 mm and a height adjustment, all busbars up to max. 160 mm can be bent different angles.
- The angle allocation is engraved at the upper part.
- The conversion from bending to punching is simple and easy.

Busbar Bending up to 160 x 12 mm
Busbar Punching Ø 6,6 - 21,5 mm

Prod.-No. 03258
Position „Punching“



Prod.-No. 03258
Position „Bending“

Prod.-No. 03258
complete (without punches and dies)

Technical Data:

Bending

Bending Cu/Alu max.:	160 x 12 mm
Bending angle up to:	92°
Smallest Length of leg:	50 mm inside dimension
Smallest U-bending:	160 mm inside dimension
Smallest Z-bending:	55 mm (material thickness dependent)

Punching

Punching Cu/Alu max.:	Ø 6,6 - 21,5 mm also oblong hole up to max. L = 21 mm
Material thickness Cu max.:	12 mm
Material width up to:	160 mm centric
Dimension L x W x H:	390 x 150 x 330 mm
Weight:	20 kg

Recommended mode of drive

Electro-hydraulic pump	DSP-120	Prod.-No. 02027
	AHP 03-1	Prod.-No. 03853
	ALH 600	Prod.-No. 03190
Air-hydraulic pump	LHP 700	Prod.-No. 02140

Budget-priced version:
Foot hydraulic pump AEP-1 in 2 stage version Prod.-No. 02020

	Prod.-No.
Basic device BS 160 Combi complete with bending die and bending punch R=11 mm for busbars from 9-12 mm (without drive, without punching tools)	03258

Accessories

Bending Punch R=5 mm for busbars from 3-8 mm	03259

Available punches and dies

Punch Ø mm		Metric screw connection		Prod.-No.
6,6	x	6,0	up to 5 mm material thickness	03204
9,0	x	8,0	up to 6 mm material thickness	03205
9,5	x	8,0	up to 6 mm material thickness	03206
11,0	x	10,0	up to 12 mm material thickness	03207
11,5	x	10,0	up to 12 mm material thickness	03208
13,5	x	12,0	up to 12 mm material thickness	03209
14,0	x	12,0	up to 12 mm material thickness	03210
17,5	o	16,0	up to 12 mm material thickness	03211
18,0	o	16,0	up to 12 mm material thickness	03212
21,0	o	20,0	up to 12 mm material thickness	03213
21,5	o	20,0	up to 12 mm material thickness	03214

x with neoprene stripper and pressure plate
o with neoprene stripper without pressure plate

Dies -S-		Prod.-No.	Dies -L-		Prod.-No.
	max. mat. thickness			max. mat. thickness	
6,6	5	03215	6,6	5	03230
9,0	5	03216	9,0	6	03231
9,5	5	03217	9,5	6	03232
11,0	5	03218	11,0	12	03233
11,5	5	03219	11,5	12	03234
13,5	5	03220	13,5	12	03235
14,0	5	03221	14,0	12	03236
17,5	5	03222	17,5	12	03237
18,0	5	03223	18,0	12	03238
21,0	5	03224	21,0	12	03239
21,5	5	03225	21,5	12	03240

Punch and dies for long holes up to max. L = 21 mm	Prod.-No.
up to 5 mm material thickness	03226
up to 12 mm material thickness	03241

ALFRA BUSBAR CUTTING MACHINE – S 160

MADE IN GERMANY BY ALFRA

For clean cutting of copper and aluminium busbars up to 160 x 15 mm max.

- Cutting time depends on width/thickness of the busbar: 10 -15 sec.
- Down-holder and guiding device for centrical and accurate cutting.
- Top knife guided sidewise; exchangeable and resharpenable.
- After cutting operation automatic shutdown via micro switch.

Technical Data:

Copper and aluminium busbars	160 x 15 mm (max.)
Cutting width	10 mm
Hydraulic cylinder	Single-acting
Knife retraction	Spring
Operation pressure max.	0 - 500 bar
Dimension L x W x H:	335 x 268 x 465 mm
Weight	38 kg

Scope of supply:
Basic machine cpl. with quick coupling, guiding device, down holder, 2 carry handles

	Prod.-No.
Busbar cutting machine S 160	03253
Spare top knife S 160/08	03254
Foot switch with START – STOP – OFF function	03865
As drive we recommend our ALFRA hydraulic pump SC 05 III B with adjusted safety shutdown	03852
or	
Electro hydraulic pump AHP 03-01	03853
Optional available:	
Foot switch with 2-pedals; start-off function	03866

Prod.-No. 03253

Image surface cross section; reworking (regrinding) by the customer recommended

Cutting waste

Prod.-No. 03852
Cutting-time ca. 10 - 15 sec.

Prod.-No. 03853
Cutting-time ca. 50 sec.

ALFRA Hydraulic busbar bending machine – B 200

For copper and aluminium rails

For quick and exact bending up to 200 x 16 mm.

- The light weight amongst the bending machines.
- Safety by using a specially developed aluminium alloy for the main body.
- Easy exchange of the dies.

Technical Data:

Copper rails

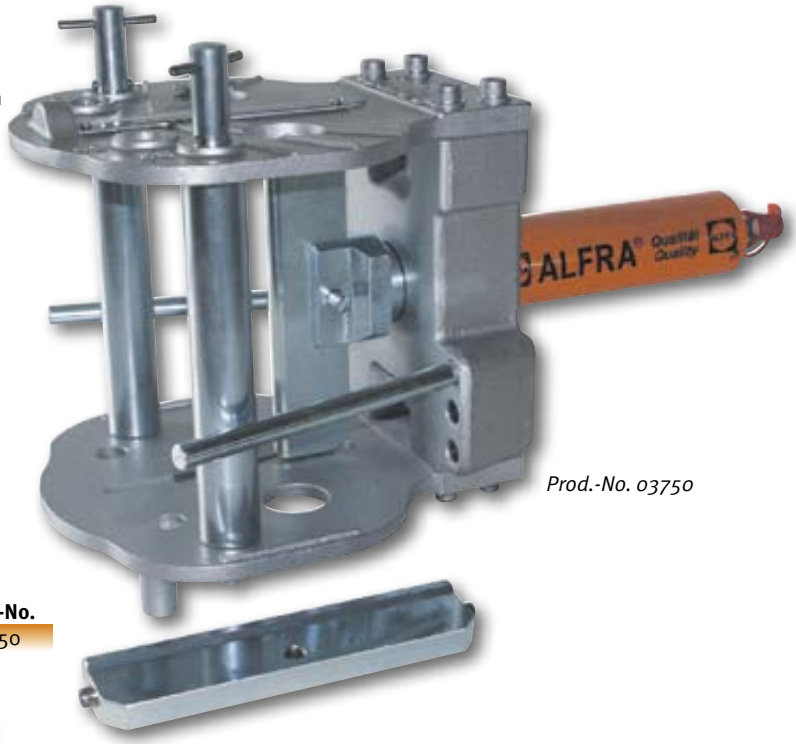
Width	200 mm
Material thickness	up to 10 mm
Bending radius	8 mm x 12 mm
Bending angle	max. 90°

Aluminium rails

Width	200 mm
Material thickness	up to 16 mm
Pressing force	110 kN
Cylinder stroke	120 mm

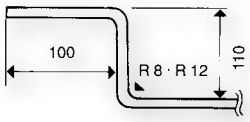
Weight	20 kg

	Prod.-No.
Hydraulic busbar bending machine – B200 without drive – incl. bending punch for radius 8 and 12 mm	03750

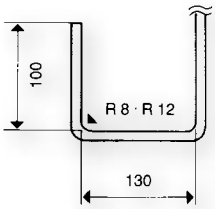


Prod.-No. 03750

Smallest Z-bending work
Copper

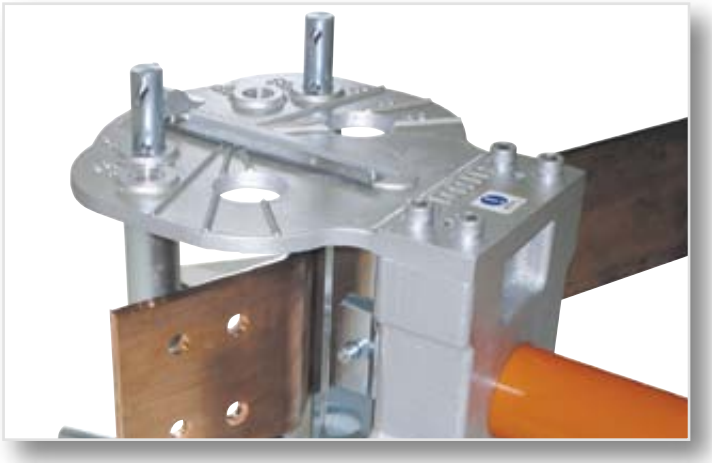


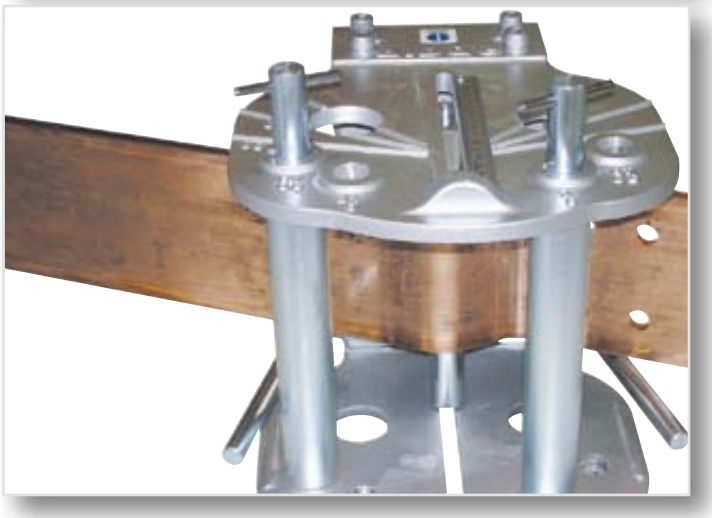
Smallest U-bending work
Copper



Prod.-No. 02027

Prod.-No. 03853





We recommend our hydraulic pump as drive
DSP 120 Prod.-No. 02027 **or** *AHP 03-1 Prod.-No. 03853*

ALFRA Hydraulic puncher – AP-65

- Specially developed for assembly application. Compact and strong design. Easily portable – flexible in application.
- For punching steel and copper
- **Application area**: punching busbars, general punching tasks in structural and bridge construction, scaffolding i.a.

Technical Data:

Piston stroke:	18 mm
Punching force:	270 kN
Outreach:	**65 mm**
Working pressure max:	700 bar
Punching range:	Punch Ø 5.5 - 21.0 mm
Weight:	16 kg
Dimension:	220 x 110 x 335 mm

	Prod.-No.
Hydraulic puncher ALFRA-PRESS 65 Delivery in steel sheet boxes with quick coupling and operating instructions	03260

Prod.-No. 03260

Tools for copper, aluminium and steel

Ø mm	Max. material thickness mm	Prod.-No. Punch	Prod.-No. Die
5,5	5	03265	03275
6,6	6	03266	03276
8,0	6	03285	03290
9,0	8	03267	03277
11,0	10	03268	03278
14,0	10	03269	03279
18,0	10	03270	03280
21,0	10	03271	03281

other Ø upon request

Prod.-No. 02027

Prod.-No. 03853

We recommend our hydraulic pump as drive
DSP 120 Prod.-No. 02027 **or** *AHP 03-1 Prod.-No. 03853*

Punch and die for AP-65

Inch sizes are available on request

ALFRA – LAMINATED BUSBARS MACHINING UNIT

MADE IN GERMANY BY ALFRA

For punching M6 – M14 (without insulation) and cutting flexible laminated rails
Thickness up to 10 mm (without insulation)
Width up to 100 mm (without insulation)

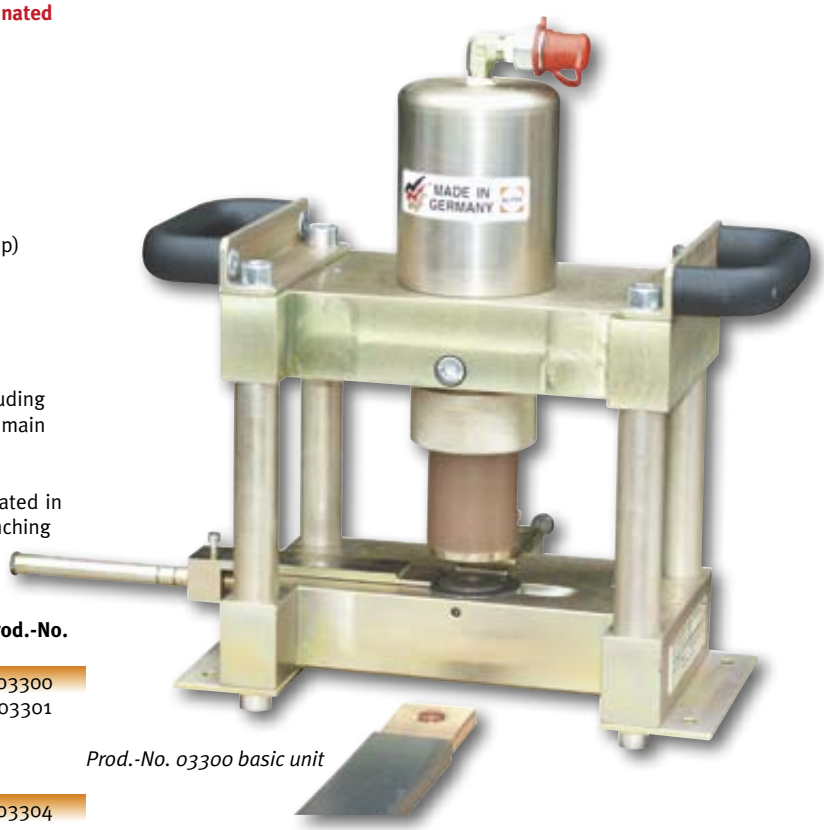
Application area:

- Separation and punching holes on finned Cu and Al rails
- Separation thickness: max. 10 mm
- Hole area: Through holes for M6 – M14 screws
- Dimension H x W x D: 400 x 250 x 150 mm (without Length stop)
- Weight: 32 kg

Main machine

- Serves for holding: Cutting block and hole punching tools
- The pressure unit comprising hydraulic piston and cylinder including punch holder in the top part are permanently integrated in the main unit.
- The centric holder hole for dies and cutting block insert are located in the lower part. Foldable stops in front and on the sides for punching are additionally mounted in the machine .

	Prod.-No.
Basic unit for laminated rails, with length and side stops, Cylinder and quick coupling	03300
Cutting block	03301



Prod.-No. 03300 basic unit

Accessories:

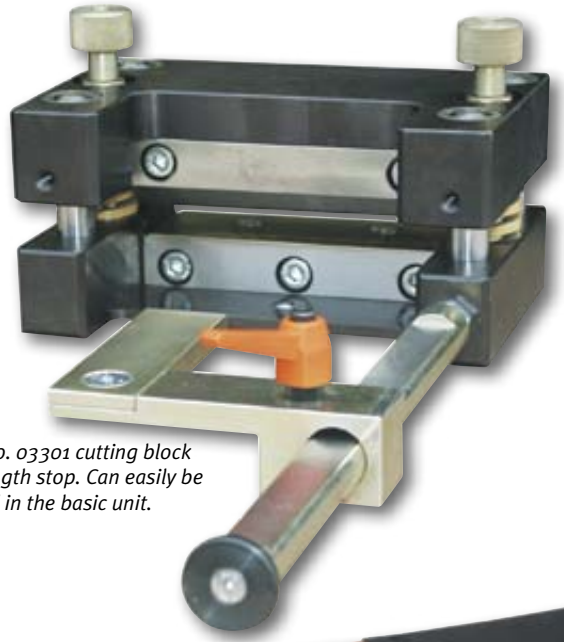
Punch with neoprene and pressure plates:

Ø 6,0 mm	03304
Ø 9,0 mm	03305
Ø 11,0 mm	03306
Ø 14,0 mm	03307

Dies:

Ø 6,0 mm	03309
Ø 9,0 mm	03310
Ø 11,0 mm	03311
Ø 14,0 mm	03312

Other Ø upon request.



Prod.-No. 03301 cutting block with Length stop. Can easily be inserted in the basic unit.

Prod.-No. 02121

Prod.-No. 02027

Prod.-No. 03853

As drive we recommend our foot pump Prod.-No. 02121 or our electro-hydraulic pump DSP 120 Prod.-No. 02027 **or** *AHP 03-1 Prod.-No. 03853.*

ALFRA Hydraulic hand pressing unit – 10 - 300 mm²

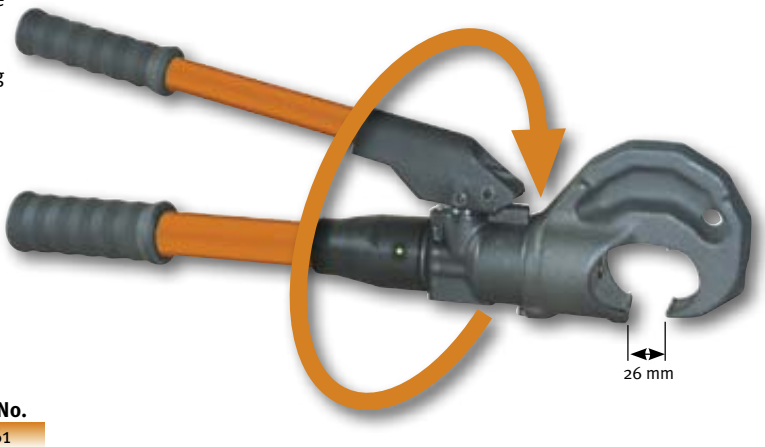
C-Form for easy handling

- C-form, pressing head **320° rotatable**, hydraulics is integrated in the hand grip. Automatic switch over from quick feed to pressing feed.
- Built-in pressure control valve. For exchangeable hexagonal pressing inserts, half-bearing according to DIN 48083.
- Delivery in plastic boxes.

Technical Data:

Pressing force:	130 kN
Pressure:	700 bar
Weight:	5.4 kg
Opening width:	26 mm
Length:	545 mm

	Prod.-No.
ALFRA Hydraulic hand pressing unit	03361



Prod.-No. 03361 ***Head can be rotated through 320°***

Hexagonal pressing inserts/Cross-sections in mm²

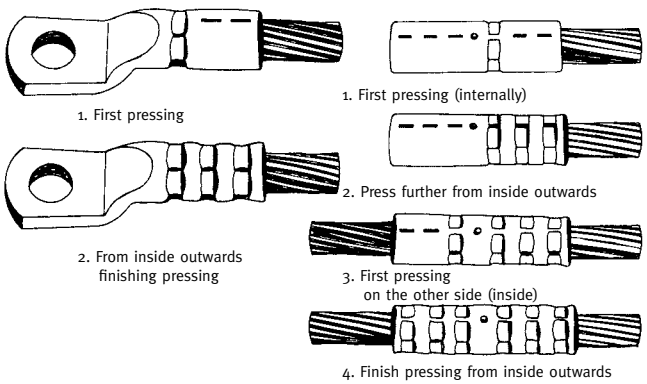
Pressing form half-bearing form, for cable shoe and connectors accord. to DIN 48083

Suitable for pressing units 03360/03380/03361

Tool identtic.	Pressing width	Copper	Aluminium	Prod.-No.
8	14	16	-	03365
10	14	25	-	03366
12	12	35	25	03367
14	12	50	35	03368
16	12	70	50	03369
18	12	95	70	03370
20	12	120	-	03371
22	14	150	95 + 120	03372
25	14	185	150	03373
28	14	240	185	03374
32	5	300	240	03376
34	5	-	300	03377

Hexagonal pressing inserts

Hints for hexagonal pressings


1. First pressing
1. First pressing (internally)
2. From inside outwards finishing pressing
2. Press further from inside outwards
3. First pressing on the other side (inside)
4. Finish pressing from inside outwards

ALFRA Hydraulic pressing heads – 10 - 300 mm²

C-Form for easy handling

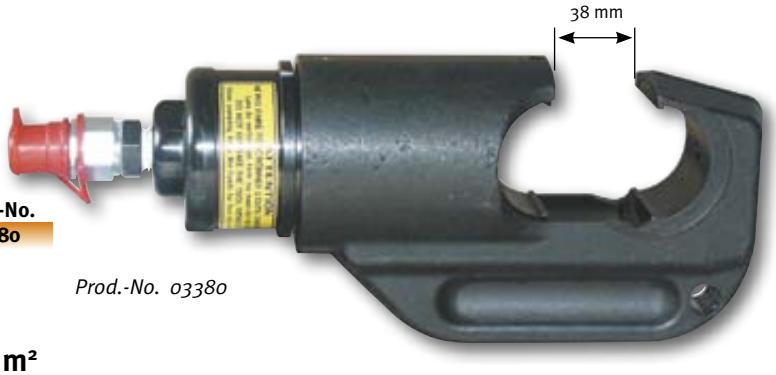
- Pressing cable shoes and connectors made of copper and aluminium from 10 – 300 mm².
- Hexagonal pressing inserts, half-bearing form according to DIN 48083.
- Delivery in steel sheet transport boxes.
- The electrohydraulic pump Prod.-No. 02027 or the foot pump 02121 can be used for actuation of both pressing heads.

Prod.-No. 03360

Technical Data:

Pressing force:	130 kN
Pressure:	700 bar
Weight:	3.9 kg
Opening width:	26 mm
Length:	245 mm

	Prod.-No.
Hydraulic pressing head Delivery in steel sheet boxes incl. quick coupling	03360



Prod.-No. 03380

Technical Data:

Pressing force:	130 kN
Pressure:	700 bar
Weight:	4.6 kg
Opening width:	**38 mm**
Length:	275 mm

	Prod.-No.
Hydraulic pressing head like Prod.-No. 03360 however **with lateral opening up to 38 mm**	**03380**

Hexagonal pressing inserts/Cross-sections in mm²

Pressing form half-bearing form, for cable shoe and connectors accord. to DIN 48083

Suitable for pressing units 03360/03380/03361

Tool identtic.	Pressing width	Copper	Aluminium	Prod.-No.
8	14	16	-	03365
10	14	25	-	03366
12	12	35	25	03367
14	12	50	35	03368
16	12	70	50	03369
18	12	95	70	03370
20	12	120	-	03371
22	14	150	95 + 120	03372
25	14	185	150	03373
28	14	240	185	03374
32	5	300	240	03376
34	5	-	300	03377

Hexagonal pressing inserts

ALFRA Hydraulic cable cutter – AKS 85

Ideal for cutting cables up to Ø 85 mm

Advantages
- Guided cutting knife.
- Independently applicable in every position.
- Clean cuts with minimum deformation.
- The cable cutter AKS 85 can be operated with the electrohydraulic pump Prod.-No. 02027 or with the foot pump Prod.-No. 02121.

Application areas:
Energy companies, power distributor construction, communication technology, telecommunications, municipal works and their service providers, crane construction, mining, shipbuilding, maintenance or repair etc.

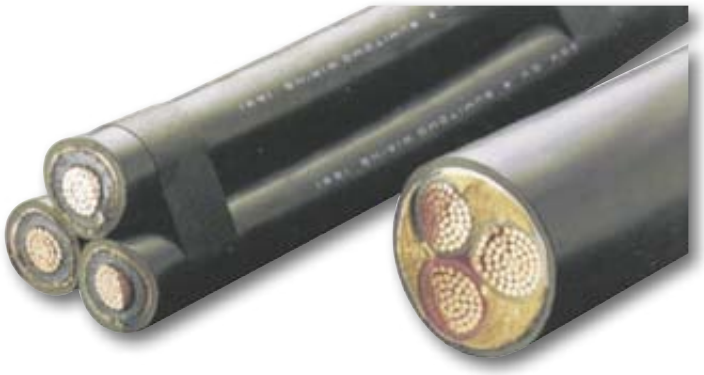
Prod.-No. 04002

Technical Data:

Cutting force:	55 kN
Cutting pressure:	700 bar
Weight:	6.3 kg
Length:	450 mm

Cutting power:

Telephone cable:	up to Ø 85 mm
Electric cable with armour:	up to Ø 85 mm
Insulated aluminium cable: (Earthing cable)	3 x 240 mm²
Insulated aluminium cable: (Single conductor)	630 mm²
Aluminium rope:	up to Ø 46 mm
Copper rope:	up to Ø 28 mm



Please name us your exact cable type (fine wire, solid, insulated...) – then we can check the cutting power.

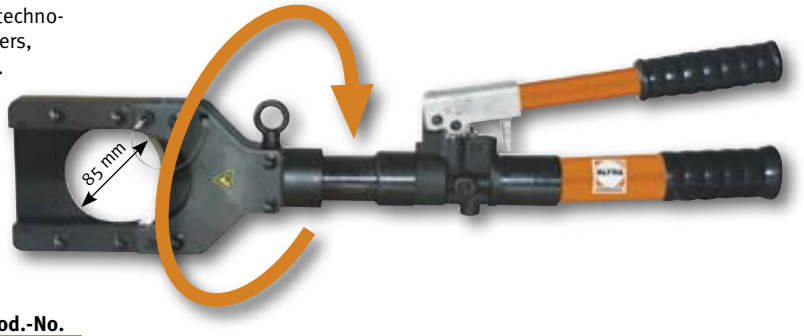
	Prod.-No.
Hydraulic cable cutter AKS 85 Delivery in canvas bag incl. quick coupling	04002

ALFRA Hydraulic hand cable cutter – HKS 85

With integrated hand hydraulics for cutting cables up to Ø 85 mm

The most convenient working position can be selected through the hydraulics integrated in the rotateable handle.
The cable cutter can be used, independent of hydraulic pumps, on scaffolds, high-voltage poles or in shafts etc.

Application areas:
Energy companies, power distributor construction, communication technology, telecommunications, municipal works and their service providers, crane construction, mining, shipbuilding, maintenance or repair etc.



Prod.-No. 04015 ***Head can be rotated through 320°***

Technical Data:

Cutting force:	55 kN
Cutting pressure:	700 bar
Weight:	6.6 kg
Length:	740 mm

The cutting power data correspond to type AKS 85.

	Prod.-No.
Hydraulic hand cable cutter HKS 85 Delivery in canvas bags	04015

ALFRA-Press

Punching without pilot hole

... solutions for housings, switch boxes and many more!

Please ask for our detailed offer regarding this stationary punching machine.
A detailed description is moreover found on our homepage www.alfra.de "Stationary punching products".

A

ALFRA

Punching without pilot drilling

ALFRA PRESS AP 250

Outreach 250 mm

Option: movable support available

Please ask for our detailed offer regarding this stationary punching machine.
A detailed description is moreover found on our homepage www.alfra.de

A

Stationary puncher – ALFRA PRESS 250

Made in Germany by ALFRA

For quick punching out of round, square, rectangular or special forms without pilot drilling in control cabinet doors, terminal boxes, cable ducts, housings, cable guiding plates etc. up to the edge area. Easily executable tool exchange, in a matter of seconds.

Description:

- Flexibly applicable – on movable frame (optional) or stationary - mounted on the work bank.
- Quick tool exchange helps in case of problems with many through-hole variants.
- Different die holders are available – also for punching in an extreme boundary area.
- Punching in rows is not a problem by means of attachable folding stops.
- Tip: Laser pointer used as option – no scribing, no centre punching, a simple cross-hair with a pen is enough.
- As a "starting solution" even actuation by means of a manual pump is sufficient – so that punching without pilot drilling" is cost-effectively possible.

Technical Data:

Outreach with stop:	250 mm
Outreach without stop:	265 mm
Punching stroke:	50 mm
Punching force F:	46 kN at 600 bar
Hydraulic connection:	R 1/4"
Weight without frame:	50 kg
Weight with frame:	120 kg
Space needed with frame approx:	Ø 1000 mm

Punching capacity:

Round from	Ø 3.2 -40.5 mm
Square up to	28.0 x 28.0 mm
Rectangle up to	22.0 x 30.0 mm
Special forms up to a Max. diagonal of	40.0 mm

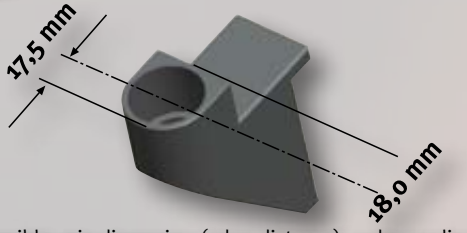
Material thickness:

Steel sheets F = 370 N/mm² up to	2.5 mm
Stainless sheets F = 600 N/mm² up to	2.0 mm
Aluminium F = 22 up to	4.0 mm
Plastics can be punched up to	4.0 mm

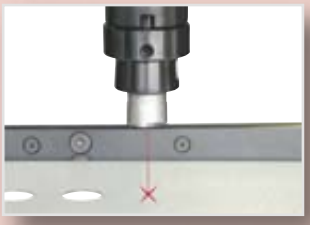
Hint:

- All round tools for ALFRA PRESS punches AP 250 - AP 800 are made of special tool steel and are provided with a special cutting geometry developed by ALFRA.
  With these tools one can machine sheets made of steel, stainless steel and aluminium.
- Special tools can be made in our own workshop at short notice.

Performance characteristics when punching in boundary area with dies holder Type I



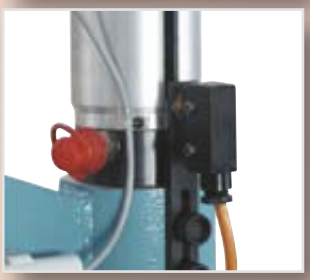
Smallest possible axis dimension (edge distance) under application of die holder Type I



LASER POINT

Laser pointer for optical indication of tool centre

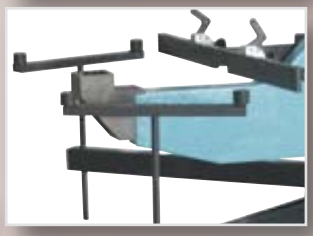
Cylinder prepared for installing a laser pointer



End switch for stroke limit (optional)

Tool tray, can be swivelled

Length- and depth fence with fold-away limit stops



Swivelled support arms, adjustable height with each 2 rubber supports (optional)

Prod.-No. 03853

Prod.-No. 03190

As drive, we recommend our electrohydraulic pumps Prod.-No. 03190 or Prod.-No. 03853.

When using other drives, the piston velocity in punching direction may not exceed 10 mm per second.

A

ALFRA

Punching without pilot drilling

ALFRA PRESS AP 400

Outreach 400 mm

Solid, movable sub-construction incl. in standard scope of supply

Please ask for our detailed offer regarding this stationary punching machine.
A detailed description is moreover found on our homepage www.alfra.de

A

Stationary puncher – ALFRA PRESS 400

Made in Germany by ALFRA

For quick punching out of round, square, rectangular or special forms without pilot drilling in control cabinet doors, terminal boxes, cable ducts, housings, cable guiding plates etc. up to the edge area. Easily executable tool exchange, in a matter of seconds.

Description:

- Flexibly applicable – on movable frame.
- Quick tool exchange helps in case of problems with many through-hole variants.
- Different die holders are available – also for punching in an extreme boundary area.
- Punching in rows is not a problem by means of attachable folding stops.
- Tip: Laser pointer used as option – no scribing, no centre punching, a simple cross-hair with a pen is enough.
- As a "starting solution" even actuation by means of a manual pump is sufficient – so that punching without pilot drilling" is cost-effectively possible.

Technical Data:

Outreach with stop:	400 mm
Outreach without stop:	430 mm
Punching stroke:	50 mm
Punching force F:	46 kN at 600 bar
Hydraulic connection:	R 1/4"
Weight:	220 kg
Space needed with frame approx:	1200 x 800 mm

Punching capacity:

Round from	Ø 3.2 -40.5 mm
Square up to	28.0 x 28.0 mm
Rectangle up to	22.0 x 30.0 mm
Special forms up to a max. diagonal of	40.0 mm

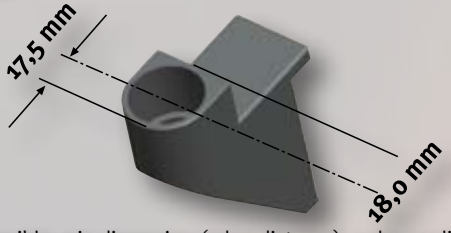
Material thickness:

Steel sheets F = 370 N/mm² up to	2.5 mm
stainless sheets F = 600 N/mm² up to	2.0 mm
Aluminium F = 22 up to	4.0 mm
Plastics can be punched up to	4.0 mm

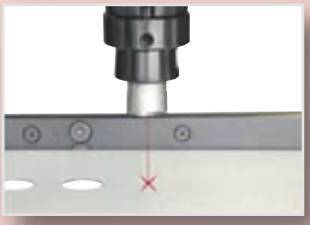
Hint:

- All round tools for ALFRA PRESS punches AP 250 - AP 800 are made of special tool steel and are provided with a special cutting geometry developed by ALFRA.
  With these tools one can machine sheets made of steel, stainless steel and aluminium.
- Special tools can be made in our own workshop at short notice.

Performance characteristics when punching in boundary area with dies holder Type I



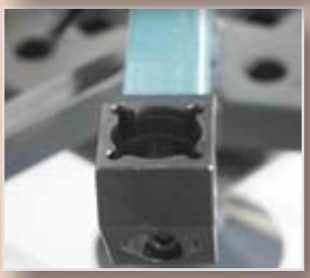
Smallest possible axis dimension (edge distance) under application of die holder Type I



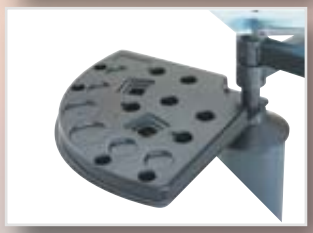
LASER POINT

Laser pointer for optical indication of tool centre

Cylinder prepared for installing a laser pointer



Die holder Type II



Tool tray, can be swivelled

Length and depth stop with foldable follow-up stops (optional)

Swivelled support arms, adjustable height with each 3 rubber supports (optional)

Prod.-No. 03853

Prod.-No. 03190

As drive, we recommend our electrohydraulic pumps Prod.-No. 03190 or Prod.-No. 03853.

When using other drives, the piston velocity in punching direction may not exceed 10 mm per second.

A

ALFRA

Punching without pilot drilling

ALFRA PRESS

AP 500 LPV

Outreach 500 mm

Front standing legs can be moved 150 mm backwards for more working space on the front side.

Please ask for our detailed offer regarding this stationary punching machine.
A detailed description is moreover found on our homepage www.alfra.de

A

Stationary puncher – ALFRA PRESS 500 LPV

Made in Germany by ALFRA

Outreach 500 mm
The stationary punching machine has been developed for control cabinet and switchgear manufacturers, for quick punching of round, square, rectangular or special forms in sheets and control cabinet doors up to 2000 mm x 1000 mm and 30 mm folding height. Punching is possible up to the edge area. Easily executable tool exchange, quickly in a matter of seconds. Even control cabinets/housing from 300 mm depth onwards can be machined.

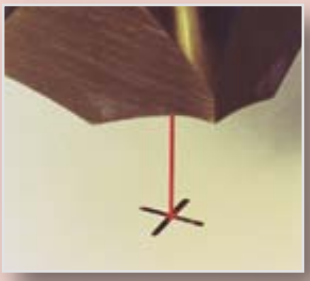
Description:
- Stable pressing body with adjustable standing feet.
- Double-acting hydraulic cylinder, flanged on machine body via force and positive connection.
- Non-rotationally arranged piston rod Ø 55 mm, made of hardened and tempered stainless steel with tool holder.
- Die seat, frictionally connected with the pressing body.
- Quick tool exchange helps in case of problems with many through-hole variants.
- Down-holder with protective function, fastened with electric safety locking for accident prevention.
- Adjustable height of length and depth stop – available in 2 variants.
- Measuring tape indication of length and depth stop.
- Two-circuit hydraulic unit with electric pump, oil container and magnetic valves (very quiet).
- Safety foot switch with double pedal for infinitely variable operation of the punching and return stroke.
- Tip: Laser pointer used as option – no scribing, no centre punching, a simple cross-hair with a pen is enough.

Technical Data:

Outreach with stop:	500 mm
Outreach without stop:	540 mm
Punching stroke:	66 mm
Punching force F:	48 kN at 130 bar
Motor power:	0.37 kW
Operating voltage:	220 V
Weight approx:	200 kg
Overall height:	1.500 mm
Working height:	1.000 mm
Width of punching head:	130 mm
Depth of punching body:	950 mm
Length of the stop rail:	1.500 mm
Space needed approx:	1500 x 1500 mm
Punching capacity:	
Round from	Ø 3.2 -63.5 mm
Square up to	46.0 x 46.0 mm
Special forms up to a max. diagonal of	60.0 mm
Material thickness:	
Steel sheets F = 370 N/mm² up to	3.0 mm
stainless sheets F = 600 N/mm² up to	2.0 mm
Aluminium F = 22 up to	4.0 mm
Plastics can be punched up to	4.0 mm

Notes:
- All round tools for ALFRA PRESS punches AP 250 - AP 800 are made of special tool steel and are provided with a special cutting geometry developed by ALFRA.
- With these tools one can machine sheets made of steel, stainless steel and aluminium.

Special tools can be made at short notice in our own tool-making department!



LASER POINT

Laser pointer for optical indication of tool centre

Electric safety locking for accident prevention.

Stop system movable in Y-direction, 2 guiding shafts in pressing body.

Die seat holder

Measuring tape indicator for Y axis

Two-circuit hydraulic unit

A

ALFRA

Punching without pilot drilling

ALFRA PRESS AP 600-2

Outreach 600 mm

Digital measuring indicator (optional)

Please ask for our detailed offer regarding this stationary punching machine.
A detailed description is moreover found on our homepage www.alfra.de

Stationary puncher – ALFRA PRESS 600-2

Made in Germany by ALFRA

Outreach 600 mm
The stationary punching machine has been developed for control cabinet and switchgear manufacturers, for quick punching of round, square, rectangular or special forms in sheets and control cabinet doors up to 2.200 mm x 1000 mm and 30 mm folding height. Punching is possible up to the edge area. Easily executable tool exchange, quickly in a matter of seconds even with a mounted door. Stop system movable in X and Y-direction.

Description:

- Stable pressing body in robust, deformation-rigid welding construction.
- Double-acting hydraulic cylinder, flanged on machine body via force and positive connection.
- Non-rotationally arranged piston rod Ø 55 mm, made of hardened and tempered stainless steel with tool holder.
- Die seat, frictionally connected with the pressing body.
- Quick tool exchange helps in case of problems with many through-hole variants.
- Down-holder with protective function, fastened with electric safety locking for accident prevention.
- Length and depth stop movable in X- and Y direction, supported in hardened double spherical guides, for smooth motion.
- Measuring tape indication of length and depth setting.
- Digital measuring indicator for X- and Y axis optionally available.
- Two-circuit hydraulic unit with electric pump, oil container and magnetic valves (very quiet).
- Safety foot switch with double pedal for infinitely variable operation of the punching and return stroke.
- Tip: Laser pointer used as option – no scribing, no centre punching, a simple cross-hair with a pen is enough.

Technical Data:

Outreach with stop:	600 mm
Punching stroke:	66 mm
Punching force F:	60 kN at 165 bar
Motor power:	0.75 KW
Operating voltage:	400 V
Weight approx:	360 kg
Overall height:	1.600 mm
Working height:	1.000 mm
Width of punching head:	310 mm
Depth of punching body:	1.150 mm
Length of the stop rail:	1.500 mm
Space needed approx:	2000 x 3.000 mm

Punching capacity:

Round from	Ø 3.2 -70.0 mm
Square up to	68.0 x 68.0 mm
Special forms up to a max. diagonal of	90.0 mm

Material thickness:

Steel sheets F = 370 N/mm² up to	3.0 mm
Stainless sheets F = 600 N/mm² up to	2.0 mm
Aluminium F = 22 up to	4.0 mm
Plastics can be punched up to	4.0 mm

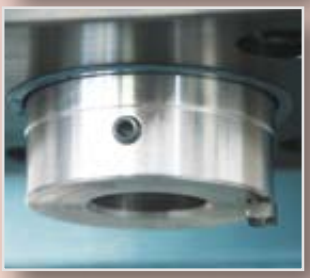
Hint:

- All round tools for ALFRA PRESS punches AP 250 - AP 800 are made of special tool steel and are provided with a special cutting geometry developed by ALFRA.
- With these tools one can machine sheets made of steel, stainless steel and aluminium.

Special tools can be made at short notice in our own tool-making department!

LASER POINT

Laser pointer for optical indication of tool centre

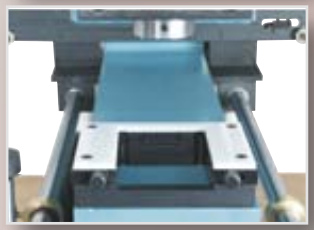


Stable piston rod (Ø 55 mm) with anti-twist tool protection

Tool drawers with compartment

Two circuit hydraulic unit in cabinet base

Mutual quick clamping system for selective folding up or down



Die seat holder. Tool exchange even with a mounted control cabinet door.

Length and depth stop on both sides in double spherical guides.
2 Adjustable stops on the right and left side of the Y-axis.

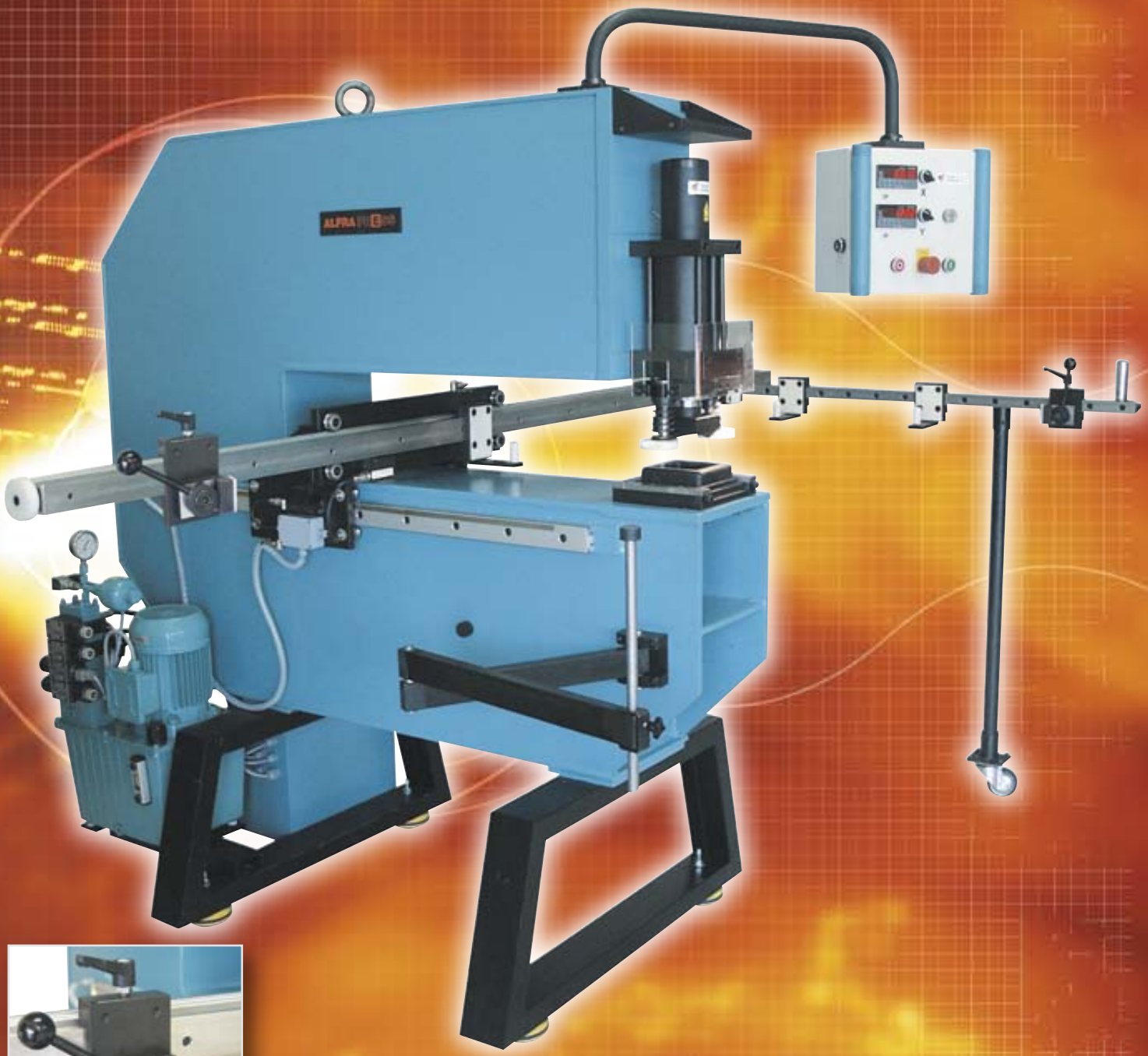
A

ALFRA

Punching without pilot drilling

ALFRA PRESS AP 800

Outreach 800 mm



Quick clamping system

Please ask for our detailed offer regarding this stationary punching machine.
A detailed description is moreover found on our homepage www.alfra.de

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Stationary puncher – ALFRA PRESS 800

Made in Germany by ALFRA

Outreach 800 mm
The stationary punching machine has been developed for control cabinet and switchgear manufacturers, for quick punching of round, square, rectangular or special forms in sheets and control cabinet doors up to 2200 mmx 1000 mm and 40 mm folding height. Punching is possible up to the edge area. Easily executable tool exchange, quickly in a matter of seconds even with a mounted door. Stop system movable in X and Y-direction.

Description:
- Stable pressing body in robust, deformation-rigid welding construction mounted on stationary frame with rubber-bonded metal feet.
- Swivel control desk with digital display, emergency off button, electric operating buttons and two-hand operation.
- Double-acting hydraulic cylinder, flanged on machine body via force and positive connection.
- Non-rotationally arranged piston rod Ø 63 mm, made of hardened and tempered stainless steel with tool holder.
- Die seat, frictionally connected with the pressing body.
- Time relay for the return of the piston spares working time.
- Down-holder/stripper combination with finger protection.
- X-Y stop system, easily movable in robust and precise profile roller guides.
- Positive and frictional workpiece support and clamping device.
- Swivelling workpiece support on the left of pressing body for easy lifting of the workpiece.
- Stop system locking via electrically operated hydraulic brakes.
- Digital distance measurement and display of the X- and Y-traverse paths with a display accuracy of 0.1 mm and a measuring accuracy of 1 ‰.
- Quick tool exchange helps in case of problems with many through-hole variants.
- Two-circuit hydraulic unit with electric pump, oil container and magnetic valves, very quiet.
- Tip: Using laser pointer as option for optical indication of tool centre.

Technical Data:

Outreach with stop:	800 mm
Punching stroke:	72 mm
Punching force F:	135 kN at 190 bar
Motor power:	1.5 kW
Operating voltage:	400 V
Weight approx:	850 kg
Overall height:	1.700 mm
Working height:	1.000 mm
Width of punching head:	280 mm
Depth of punching body:	1.700 mm
Space needed approx:	2360 x 4.440 mm

Stop system:

Length of the stop rail:	2.500 mm
Traverse path of X-axis:	2.000 mm
Workpiece clamping length X-axis:	2.200 mm
Y-axis:	1030 mm

Upon desire, stop rail available in special length.

Punching capacity:

Round from	Ø 3.2 -120.0 mm
Square up to	110.0 x 110.0 mm
Special forms up to a Max. diagonal of	140.0 mm

Material thickness:

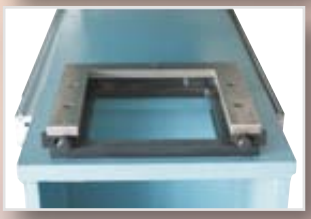
Steel sheets F = 370 N/mm² up to	3.0 mm
Stainless sheets F = 600 N/mm² up to	2.0 mm
Aluminium F = 22 up to	4.0 mm
Plastics can be punched up to	4.0 mm

Special tools can be made at short notice in our own tool-making department!

Control panel with two-hand operation

Positive and frictional workpiece support with quick-clamping system

Tool holder, anti-twist protected in the piston rod, down-holder/stripper combination



Die holder, tool exchange possible even with a mounted control cabinet door

Distance measurement of X-and Y-traverse paths

Two-circuit hydraulic unit

Down-holder/stripper combination